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LEICA'S SL3-S

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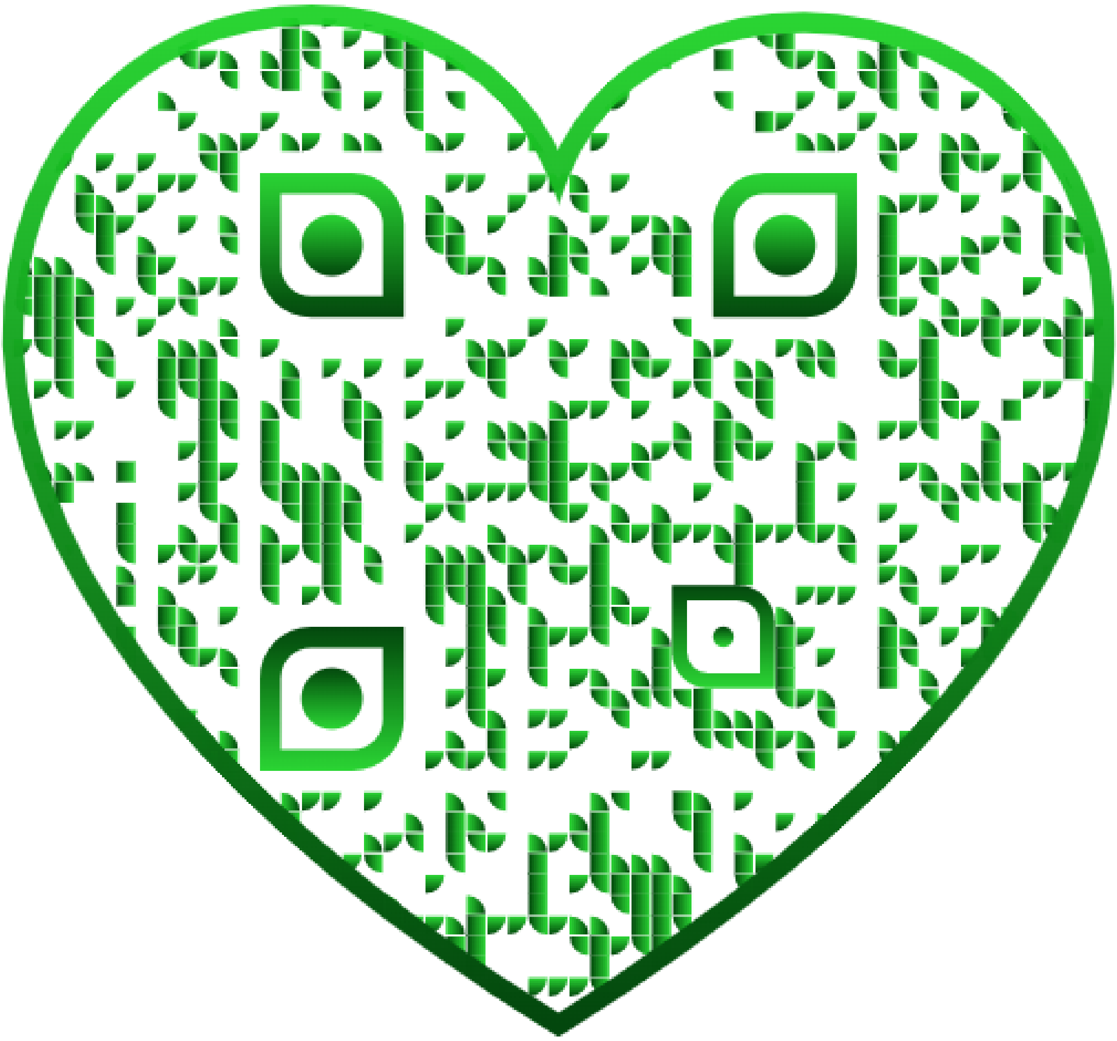

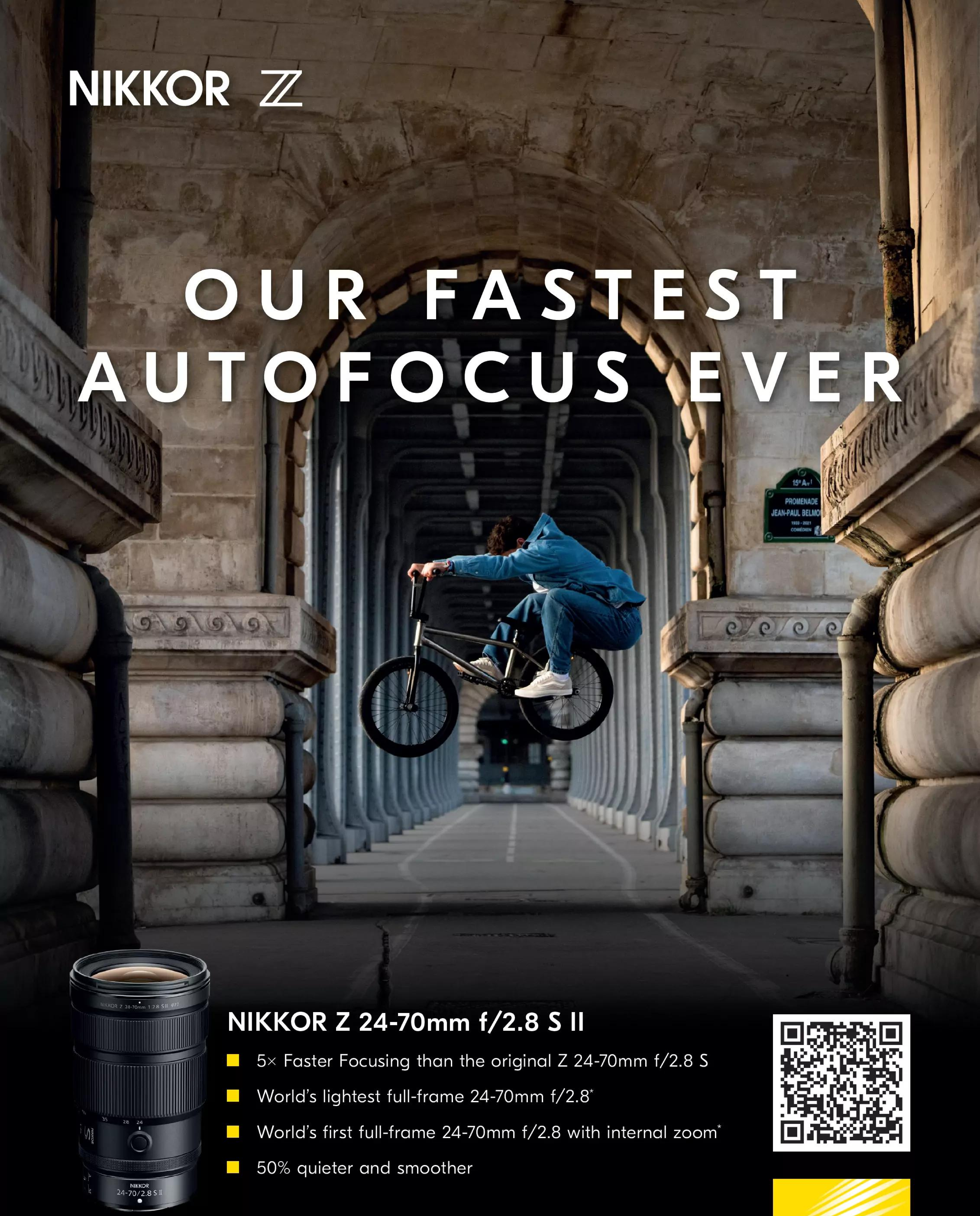
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*As of August 22, 2025, among 24–70mm f/2.8 interchangeable lenses for full-frame/FX-format mirrorless cameras. Based on Nikon research.

Nikon

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ISSUE 433

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ROMANCE VERSUS REALITY

The classic mechanical and manual 35mm SLR. Nice to look at, but…

If you're a long-time reader of this magazine, it's likely that, like me, you started out shooting film. It's possible that – also like me – you found the whole digital capture thing a bit alien and – certainly for everything post-camera – quite challenging. Obviously I had to get my head around the new technology pretty fast, but for myself I kept on shooting film for quite a while. Over time though, we've begun to take for granted all the conveniences that digital imaging delivers… so much so that going back now looks like the challenge.

This was particularly highlighted while reviewing Fujifilm's X Half – the full test is in this issue – and, in particular, its 'Film Camera Mode'. It imposes a whole bunch of restrictions that were par for the course when shooting film. And that really got me thinking about the realities of film photography versus the romantic notions about it being a more inclusive experience, more thoughtful, less rushed and all the other things that look attractive until you actually get there. In theory, these are all good things and were the way it was when photography was all about film and nothing else. I got started on Kodachrome 64, one of the most unforgiving film stocks there was (except for maybe K25), and it meant getting everything right in-camera – composition, framing, focusing and exposure. It was a good training and I still aim to do all this today, but it's nice to have digital's many safety nets and to be able to explore more options with every subject or situation.

Of course, towards the end, 35mm cameras in particular, but also medium format models, were fully-automated with push-buttons and info screens so what we're really talking about when we talk of the "film camera experience" is either fully mechanical or largely manual camera which demands that you do most of the work… and, more importantly, that you know what you are doing. This is certainly what the X Half is trying to replicate with its faux film advance lever, single shot operation and the various adjustments that can no longer be adjusted because you're in the middle of a 'roll' (there's even a virtual rewind sequence). Look, it could be fun, but I bailed out of my roll well before the end because I just couldn't see the point of having to wait until I'd burned through 36 exposures before I could see what I'd shot (and you can set it to 54 or 72 – because it's meant to be a half frame camera – which seems even more tortuous). Of course, this is the way it used to be and we all learned to live with it, but I no longer think it's necessary to go through all the angst that always existed between finishing films and having them processed, especially if it was a big assignment.

If you've never shot film before; this surely has to be the biggest reality check… you just won't know whether you've got it right until, most likely, you aren't able to repeat the situation or circumstances. After all, they don't call something "once-in-a-lifetime" because it's going to happen again any time soon. Beyond this, you're stuck with the same film type and ISO setting for a whole 36 shots unless you use multiple cameras (which, of course, many pros did). Dialling the ISO up or down – albeit mindful of the image quality implications – is one of the great luxuries of digital capture… and you really miss it when you can't. Colour balance is another fixed value with film although, unless you regularly shot tungsten-balanced film under hot lights, it's likely you were blissfully unaware of what it was all about. But if you needed the colours to be absolutely right – as many pros certainly did – colour correction filters on the lens were the only way. Now many digital cameras allow for the fine-tuning of white balance in degrees Kelvin. If anything, digital capture has given us a greater understanding of the technicalities and a greater ability to exploit them to achieve our visions. And creativity is still solely down to you.

Film has its own alchemy along with some elements of unpredictability which certainly have an artisanal appeal; the process perhaps becoming even more important than the picture. I get that, but I for one, certainly don't need to go back, not even for fun. The fun today, I think, is exploring how to make the most of the vast picture-making capabilities at your fingertips in a digital camera.

Paul Burrows

Paul Burrows, Editor.

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OUR FRONT COVER:
Featured on this issue's front cover is the OM-5 Mark II which continues the OM System tradition of making ultra-compact but very capable mirrorless cameras. Our full road test starts on page 68. The photograph is by German OM System ambassador and travel photographer Melanie Többe.

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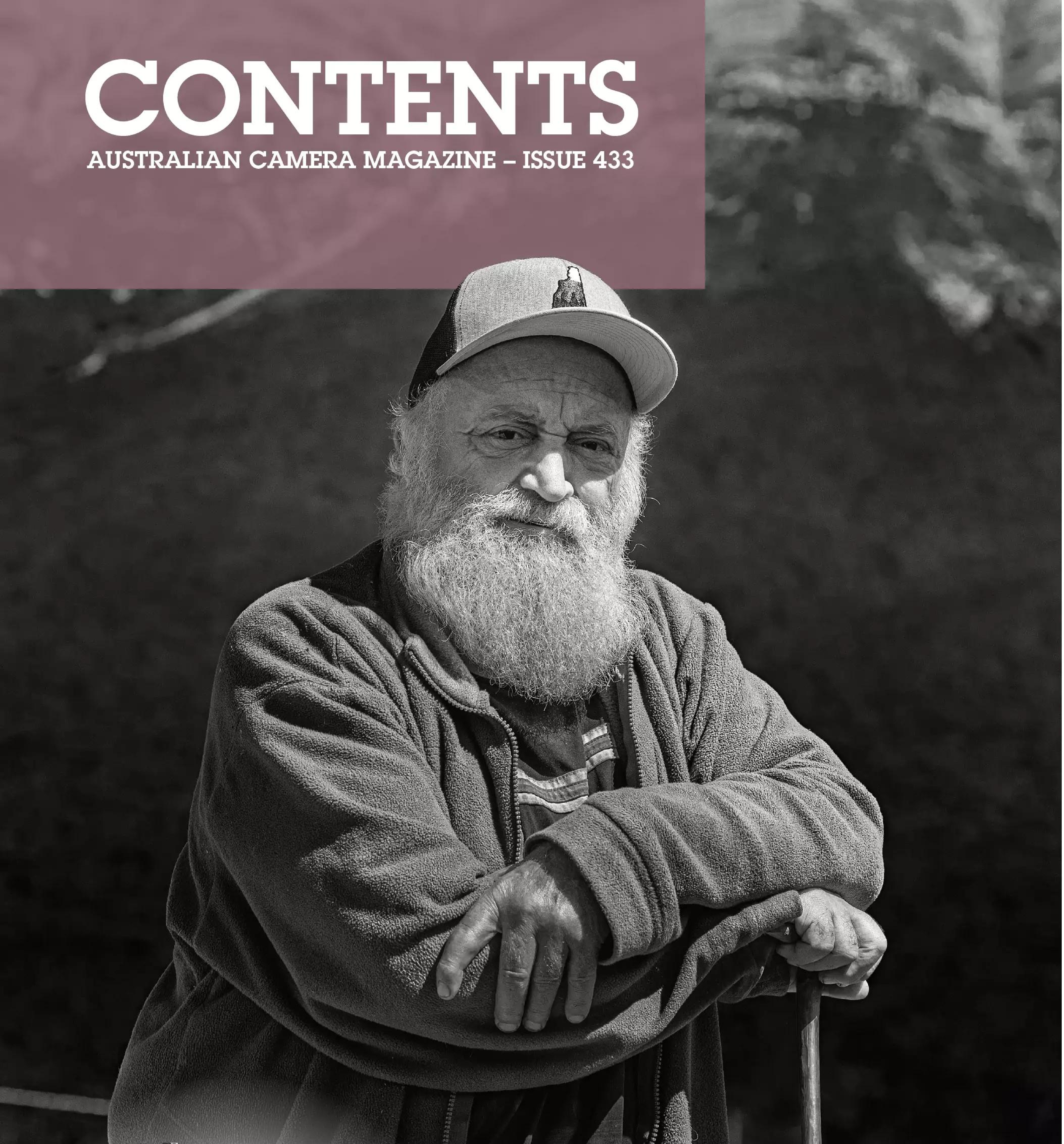

RX1R
SONY
ZEISS

REGULARS

6 WHAT'S NEW

The revival of the compact camera continues to gather steam with Ricoh unveiling the much-anticipated GR IV and Sony getting its timing just right with the long-awaited RX1R III. They're very different animals, of course, because the Sony is now packing a 60 megapixels full frame sensor – with a price tag to match – while the Ricoh sticks very much with the GR tradition of being a pocket rocket that's ideal for street and travel photography. If you've got a bigger budget, Hasselblad would like to interest you in its new X2D II 100C mirrorless medium format camera which introduces the idea of HDR capture being its default mode so it has a brighter, high-contrast monitor to match. There's also ten stops of worth of image stabilisation, continuous AF with LiDAR assistance and subject recognition, and a massive 1.0 TB of external storage. A new Hasselblad standard zoom – the XCD 35-100mm which is equivalent to 28-76mm – goes very nicely with the stylish X2D II 100C… if you've got a cool $20,000 to spare. Talking of new lenses,

◂ **Page 16:** Street photographer Bruce Usher travels through Italy capturing life on the lively streets of Rome, Milan and Bologna.
Image by Bruce Usher © 2025

Sigma continues what's been a very busy year for the company so far and introduces a highly-desirable 200mm f/2.0 super-fast telephoto, and a nifty ultra-wide prime for the Sony E, Fujifilm X and Canon RF 'APS-C' format mounts. Also check out our calendar of upcoming photography events… there's plenty going on over the coming months.

14 LIGHT WORK

These pictorial features are designed to help you better appreciate how successful photographers deal with different subjects and situations to create a memorable photograph. In this issue, we tell the story behind one of the photographs which helped American photographer and professional drone pilot Joanna Steidle win the inaugural International Aerial Photographer of the Year award.

78 SIGMA SHOWCASE 2025

Our Showcase sponsor, Sigma lenses – via Australian distributor C.R. Kennedy Photo Imaging – is providing the competition's grand prize of a lens – your choice of model and mount – valued at up to $1000. The 2025 Showcase is now up to Round 3, but there's still another three rounds to go so you have plenty of opportunities to enter ahead. Submit your entries online at camera@futurenet.com

80 CAMERA BUYER'S CHECKLISTS – MIRRORLESS CAMERAS, DIGITAL RF CAMERAS AND DSLRS

Our buyer's checklists for mirrorless cameras, DSLRs and the digital RF models allow you to directly compare all the key specifications and features at the main price points.

FEATURES

16 PORTFOLIO
PER LE STRADE D'ITALIA

Street photographer Bruce Usher travels through Italy capturing life on the lively streets of Rome, Milan and Bologna; while also negotiating train strikes, a disasterous mishap with a favourite lens and the inevitable encounter with a sneaky pickpocket.

FUJIFILM
X half
SUPER EBC f=10.8mm 1:2.8
FUJINON ASPHERICAL LENS
Leitz Elmar

40 FEATURE
THE CAMERA THAT CHANGED THE WORLD

Leica's camera business is the strongest and most successful it's ever been in its long history which is to be celebrated in itself because, over that time there have been a few occasions when the future didn't look quite so bright. However, it certainly did when the very first Leica camera – then simply called the Leica, and revolutionary in its design – went on sale in 1925 and, before too long, changed photography for ever.

66 CAMERA ICONS
HASSELBLAD XPAN

Before the Hasselblad XPan, panoramic cameras were either big and bulky or extremely unreliable (or both), but the genius idea of a 'double 35mm' format in a comparatively compact rangefinder body made it an immediate hit. Consequently, the XPan extended panorama photography into many more applications beyond just landscapes, including photojournalism and sports.

ON TRIAL

24 ON TRIAL
POLAROID FLIP

Flip-type Polaroid instant cameras were both prolific and popular during the 1980s and '90s with over 30 models (and numerous promotional special editions) launched over this period. Now the revived Polaroid has come up with an all-new camera called the Flip – well, why not? – which is a mix of the old and the new… and still a lot of fun to use.

30 ON TRIAL – LEICA SL3-S

Appropriately as we celebrate a century of Leica cameras in this issue, the SL3-S is the very latest model to wear the legendary brand and also its fastest model ever… delivering 30 fps continuous shooting. It's very unlikely that, back in 1925, Oskar Barnack and Ernst Leitz II would have envisaged anything like the photographic and video powerhouse that is today's digital mirrorless camera.

48 ON TRIAL
FUJIFILM X-E5

Fujifilm packs its 40 megapixels 'X-Trans CMOS 5 HR' sensor and latest-generation 'X Processor 5' engine into the slim and stylish rangefinder-style X-E series body. So is this the most desirable X mount mirrorless body you can currently buy?

58 ON TRIAL
FUJIFILM X HALF

What is it exactly? Well, it's a digital camera pretending to be a half frame film camera so it works much like a film camera, but you still get JPEGs. It's also a fixed lens compact camera that's very compact indeed. It's also very quirky, but a hoot to use. Intrigued? If you want to know more turn to page 58 now.

68 ON TRIAL
OM SYSTEM OM-5 MARK II

Affordability was one of the key attractions of the first OM-5 model, and it's now even more the case as the Mark II upgrades include a much-improved menu system, a more comfortable handgrip and numerous small tweaks that further enhance the fundamental appeal of the size, weight, speed, handling and image quality.

SIGMA REVIVES CLASSIC FAST TELEPHOTO FOR FULL FRAME MIRRORLESS

THE 200MM F/2.0 fast telephoto prime was a popular optic in a number of DSLR systems, but Sigma's new 200mm f/2.0 DG OS Sports model is the first made for full frame mirrorless cameras. This combination of focal length and lens speed is useful for several applications including portraiture, fashion and sports, particularly in low-light conditions.

The optical design comprises 19 elements in 14 groups which includes two of Sigma's 'FLD' types and two 'SLD' types. The 'FLD' elements – F Low Dispersion – are designed to have the same super extra-low dispersion characteristics of fluorite glass without being as expensive to produce. Along with the 'SLD' elements, these significantly reduce chromatic aberrations and enhance overall sharpness. Both Sigma's 'Super Multi-Layer Coating' and 'Nano Porous Coating' anti-reflection multi-coatings are used to suppress ghosting and flare.

The autofocusing drive employs a high-thrust 'HLA' (High-Response Linear Actuator) motor to enable fast and quiet adjustment. Focusing is performed internally, and the minimum focusing distance is 1.7 metres which gives a maximum reproduction ratio of 1:7.6. The L mount version additionally allows for the switching between linear and non-linear focus adjustments.

The 200mm f/2.0 has Sigma's latest OS2 optical image stabilisation which gives 6.5 stops of correction for camera shake and has the choice of standard and panning modes. The lens's diaphragm has 11 blades for smoother, more rounded out-of-focus effect, and the minimum aperture is f/22.

The external construction uses magnesium alloy barrel tubes and is weather sealed along with a fluorine coating on the front element to help repel moisture and grease. The on-barrel controls include three focus lock buttons, a focus limiter switch and an OIS mode selector. There's also a manual aperture collar with the option of either click-stopped – in one-third stop increments – or seamless adjustments.

The physical dimensions are a length of 201 millimetres and a maximum diameter of 118.9 millimetres which results in a screwthread filter fitting of 105 millimetres. It weighs in at 1.82 kilograms. The lens's tripod mounting collar is fixed but can be fully rotated with soft-stop detents at 90-degree intervals and has an Arca-Swiss type foot plate. The lens is compatible with Sigma's USB Dock UD-11 for firmware upgrades and operational customisation.

The Sigma 200mm f/2.0 DG OS Sports is available in the Sony FE and L mounts (for Sigma, Panasonic and Leica mirrorless cameras). It's priced at $6500 and is available in Australia now. Sigma products are distributed in Australia by C. R. Kennedy Photo Imaging and for more information visit **https://sigmaphoto.com.au**

COMMENT

GOOD THINGS IN SMALL PACKAGES

WITH THE PROMISED arrival of Ricoh's GR IV and Canon announcing that it is increasing production of the PowerShot G7X III, the compact camera revival could really be A Thing. And that's definitely a Good Thing because, especially in the digital era, the compact was a particularly interesting and exciting area of camera design. The digital technologies made it easier to pack more into less space and a lot of automation made its debut in this category of camera before being applied elsewhere. Higher-end compacts had returned in the 35mm format prior to the digital capture revolution, but subsequently there were models that even professionals were using… Canon's PowerShot G1 series being a prime example. The G1X Mark III from 2017 was well as serious as you could get without going to a DSLR – 24 MP 'APS-C' sensor, PDAF, 24-70mm equivalent zoom, EVF, RAW capture and 5.2 fps continuous shooting. It's not hard to imagine a Mark IV model with the latest tech such as AI-driven subject recognition, a HEIF capture mode, faster continuous shooting with a bigger buffer, picture recipes, 4K video, and perhaps built-in storage. Yes, Sony's new RX1R III has pretty much all of these capabilities, but it is an $8000 camera so perhaps not something you'd think about buying to supplement your mirrorless or DSLR kit. The G1X III sold for around $1600 when new so our fantasy Mark IV model could still sell for around $2500 and be well worth considering as a truly capable compact for those times when smallness, lightness and a fixed lens are real plusses. Ricoh's GR IV, by the way, has a price tag in the region of $2000, and the order book is already filling fast.

Of course, the higher-end digital compacts were made possible – and possibly also more affordable – by very healthy sales of lesser models and it's hard to see these coming back, at least not in any significant volumes. There are plenty of people who are very happy snapshooting with their smartphones and who just don't need a second device getting in the way. However, those who want something more – and in the shape of a real camera – look to be generating enough demand for a return to enthusiast-level compacts. Will it be enough to convince other camera-makers to get back into a business in which everybody was once involved?

Well, I suspect there's pent-up demand elsewhere too… namely keen photographers who want a small camera that can still do lots of stuff. When I was shooting with my Nikon 35mm SLRs – an F5 and two F100s – I also had a 35Ti in the kit and it worked brilliantly on quite a few jobs. However, I necessarily don't think classical styling is a must – although dials are nice – but I do think a zoom lens is worth having (as opposed to cropping on the sensor) and an EVF essential. Leica's D-Lux 8 is certainly a close match although it's also a refresh of an older design and so lacks the very latest tech. And now that we've seen the X Half, perhaps Fujifilm is planning something more… well, mainstream? It certainly has a decent back catalogue for inspiration – X20, X30, X70 and even the XF1 – along with, of course, the 'X-Trans' sensor and the 'Film Simulation' profiles.

After the X Half, anything is possible… and now a lot more likely to be probable. Exciting times are ahead.

Paul Burrows, Editor.

▲ Could classy high-end compact cameras like Nikon's titanium-bodied 35Ti (from 1993) make a return?

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SONY REVIVES FIXED-LENS COMPACT, NOW WITH 61 MP RES & 4K VIDEO

AFTER A LONG hiatus – nearly ten years, in fact – Sony has re-introduced its RX1R fixed lens, full frame compact camera. The third-generation version matches a 61 megapixels 'Exmor R' BWSI-type CMOS sensor with Sony's latest 'Bionz XR' image processor and has the same Zeiss Sonnar T* 35mm f/2.0 prime lens as the previous model. The new model also still has a magnesium alloy bodyshell but has been redesigned so the viewfinder is now a fixed part of the camera – located at the top left –rather than a pop-up module as before. Additionally, the monitor screen is now fixed rather than tilt-adjustable which partially helps keep the RX1R III extremely small… sized at 113.3x67.9x87.5 mm (WxHxD). It weighs in at 498 grams, including the battery and memory card.

Compact, fixed-lens cameras are back – although at the moment, specifically higher-end models – so the RX1R II's timing is spot-on, and its 60 megapixels resolution puts it up against the Leica Q3 models. Compared to these, the Sony camera is both a lot more compact and less expensive. Not surprisingly, it borrows a lot of tech from the latest Alpha series full frame mirrorless cameras, including the 'AI Processing Unit' which drives the AI-based subject recognition and AF tracking. AI recognition is available for humans, animals, birds, insects, cars, trains and aircraft, plus there's an auto mode which find any of these subjects is in the frame. Additionally, there's 'Human Pose Estimation' which learns human forms and postures so that not just the eyes are recognised, but also the position of the body and head to ensure more reliable tracking. The hybrid phase/contrast-detection AF system employs 693 measuring points, representing 78 percent frame coverage.

The sensor has Sony's AR (Anti-Reflection) multi-coating and omits the optical low-pass filter to optimise image sharpness. The sensitivity range is equivalent to ISO 100 to 32,000, expandable down to ISO 50 and up to 102,500. Sony quotes a dynamic range of 15 stops at the lower sensitivity settings. Continuous shooting is possible at up to 5.0 fps for a burst 120 extra-fine quality JPEGs or 52 RAW files. The RX1R III also has 10-bit HEIF capture, and the RAW capture can be set to compressed, lossless compressed or uncompressed. The camera has a single memory card slot for SD devices and it provides UHS-II speed support. For video, the camera can record 4K UHD (i.e. 3840x2160 pixels) at up to 25/30 fps with 10-bit 4:2:2 colour and Full HD at up to 100/120 fps with 8-bit 4:2:0 colour. Video features include time code, 'Slow & Quick' speeds, the S-Cinetone colour profile, S-Log3 recording, proxy recording and user-defined LUTs. There's a stereo microphone input, but the camera's 'Multi-Function Shoe' can also be used for supported video accessories.

The new fixed EVF employs a 1.0 cm OLED panel with a resolution of 2.36 megadots and a magnification of 0.7x. The monitor is a 7.5 cm TFT LCD touch screen and has a resolution of 2.36 megadots. The RX1R II retains a mechanical shutter which is a between-the-lens leaf type with a speed range of 30-1/4000 second. Being a leaf shutter, flash sync is available at all speeds. The camera's sensor shutter boosts the fastest speed to 1/8000 second (and 1/12,800 second for video).

The lens's optical construction employs eight elements in seven groups which includes three aspherical types. It focuses down to 24 centimetres, but there's also a macro mode which gets as close as 20 centimetres, giving a maximum magnification ratio of 1:3.8. The minimum aperture setting is f/22 and the screwthread filter fitting is 49 millimetres.

A 'Step Crop Shooting' function has settings for the equivalent of the 50mm focal length, giving 29 megapixels resolution and at a 70mm equivalent with 15 megapixels resolution. A selection of 12 'Creative Look' profiles include three film-like (FL) looks and provisions for creating up to six custom profiles via eight adjustable parameters.

The Sony RX1R III is priced at $7999 and available in Australia now. For more information visit **www.sony.com.au**

CROPPED SENSOR MOUNTS GET FAST SIGMA ULTRA-WIDE PRIME

SIGMA'S NEW 12MM f/1.4 DC Contemporary ultra-wide prime lens is the equivalent of 18mm on the full frame format and gives an expansive angle-of-view of 99.6 degrees. It's currently the widest f/1.4-speed lens for 'APS-C' mirrorless cameras. It's also a very compact lens which measures just under 70 millimetres in length and weighs 225 grams (Sony E mount version). It's available in the Sony E, Fujifilm X and Canon RF mounts. As Canon's 'APS-C' sensors have a crop factor of 1.6x (versus 1.5x for the others), the effective focal length on these camera bodies is 19.2mm).

The optical construction employs 14 elements in 12 groups which includes three double-sided aspherical types and two which have super-low dispersion ('SLD') characteristics. The aspherical elements minimise distortion while also enhancing overall sharpness, and the SLD elements are designed to correct for chromatic aberrations. The optical design also minimises sagittal coma flare, making this lens suitable for astrophotography as does the super-fast maximum aperture.

The diaphragm employs nine blades to render smoother out-of-focus effects, and the minimum aperture setting is f/16. The Sony E and Fujifilm X mount versions have a manual aperture collar while the Canon RF mount model has a multi-function collar – as per Canon's own lenses – which can be assigned to aperture selection among other actions. The autofocusing drive uses a stepper-type motor for enhanced speed and accuracy, and the minimum focusing distance is 17.2 centimetres which gives a maximum magnification ratio of 1:8.4. Focusing is performed internally so there's no change in the barrel length. Additionally, Sigma says focus 'breathing' is minimised which is good news for video-makers.

This lens's external construction is sealed to prevent the intrusion of dust and moisture, and the front element has a fluorine coating to help repel water and grease. The screwthread filter fitting is 62 millimetres.

The Sigma 12mm f/1.4 DC Contemporary is priced at $1100 and is available now. Sigma products are distributed in Australia by C. R. Kennedy Photo Imaging and for more information visit **sigmaphoto.com.au**

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HASSELBLAD'S MARK II H2D 100C GOES FULL-ON HDR

IT'S A FIRST, but we may see more of it because makes a lot of sensor. The headline feature of Hasselblad's updated 100 megapixels H2D mirrorless medium format camera is what the company is calling "end-to-end HDR". It means that the camera's default capture setting is for 10-bit HEIF files – with the option of Ultra HDR JPEGs – and it has a high- brightness monitor screen so you can see something of the extended dynamic range when view finding. Hasselblad says the Ultra HDR JPEGs have three stops more dynamic range compared to those using the sRGB colour space. The monitor is the same 9.1 cm tilt-adjustable touch screen OLED panel as before with a resolution of 2.36 megadots, but now with a peak brightness of 1400 nits – that's 75 percent brighter – and a contrast ratio of 2,000,000:1. It reproduces the wider DCI-P3 colour gamut and is also calibrated to the D65 industry standard for colour temperature, ensuring a more accurate colour reproduction. The EVF is an OLED panel with a resolution of 5.76 megadots and a magnification of 1.0x.

There are big upgrades elsewhere too, with the H2D II 100C now offering continuous autofocusing with AI-driven subject detection and tracking for humans, animals (dogs and cats) and vehicles. The hybrid phase/contrast-detection – which has 425 PDAF measuring points – adds a third element called LiDAR which is short for Light Detection and Ranging. This technology comes from drone-maker dji – Hasselblad's parent company these days – and is an active AF system which bounces pulsed laser beams off the subject to determine its distance, enhancing the low-light AF performance. However, the H2D II 100C also gets an AF assistance lamp to help here too.

The sensor is the essentially the same "33x44" format BSI CMOS as before, but with some tweaks so the sensitivity now extends down to ISO 50 and the dynamic range is slightly increased to 15.3 stops. It's capable of delivering 16-bit colour depth. Probably also leveraging dji technology is the Mark II's camera's in-body image stabilisation (IBIS) which now has five-axis movement, but more notably, the correction for camera shake is up to ten stops, besting the OM System OM-1 Mark II's 8.5 stops while Fujifilm's GFX100 II was previous medium format camera IBIS king with 8.0 stops of correction. Ten stops with such a big sensor is quite an achievement. However, just whether you can make full use of this capability in practice is debatable – as the theoretical shutter speeds will simply be too long – but it certainly extends the hand-holding possibilities.

As before, the H2D II 100C has a massive 1.0 TB of internal storage on a solid-state drive (SSD) backed by a memory card slot for CFexpress Type B devices.

The H2D II 100C is accompanied by a new zoom lens – the XCD 35-100mm f/2.8-4.0 which is effectively a 28-76mm. It's an 'E' series lens – E for Exclusive – which are the Hasselblad X system's best-performers and has an optical construction employing 16 elements in 13 groups, including three aspherical types and five with extra-low dispersion (ED) characteristics specifically to meet the resolution demands of a 100-megapixel sensor.

The Hasselblad H2D II 100C is priced at $12,650 body only while the XCD 35-100mm f/2.8-4.0 E zoom is $7199. Hasselblad products are distributed in Australia by C. R. Kennedy Photo Imaging and for more information visit **https://hasselblad.com.au**

NIKON REVISES STAPLE Z MOUNT 24-70MM ZOOM... A LOT!

MOST LENS UPGRADES are minor, but Nikon has really gone all-out on its revision of the Nikkor Z 24-70mm f/2.8 S standard zoom. Obviously, this is an important lens for a great many photographers and the original model was a pretty impressive performer with its high-end 'S' standard optics and construction, but the Mark II version is designed to be significantly better.

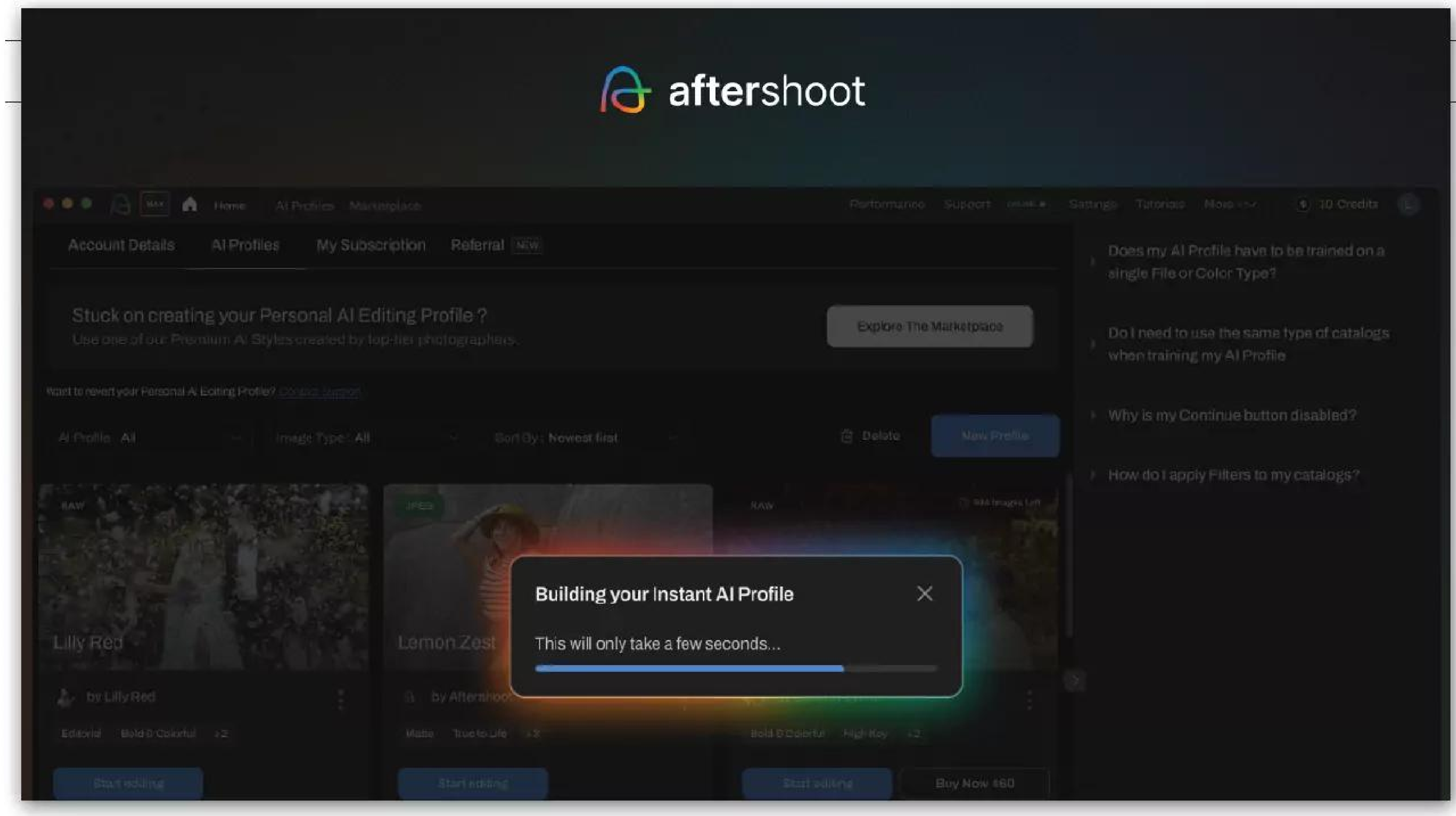
There's a completely new optical design which uses 14 elements in ten groups compared to 17 in 15 groups previously. This includes three aspherical types and two made from extra-low dispersion (ED) glass to help minimise chromatic aberrations. New glass formulations and advances in optical technologies have enabled the overall reduction in the number of elements, reducing the weight to 675 grams. The screwthread filter fitting is now 77 millimetres rather than the bigger 82 millimetres fitting of the previous model. This means that filters can be shared between these lenses rather than two settings being required. Nikon's 'Meso Amorphous Coat' anti-reflection multi-coating combines with its 'ARNEO Coat' technology to effectively minimise ghosting and flare.

Another significant revision is the adoption of an internal zooming mechanism which enhances the sealing against the intrusion of dust or moisture but also means that the lens is now 14 millimetres shorter when zoomed out (although it's now 16 millimetres longer at the 24mm position). That the lens's length doesn't change with zooming is also an advantage for video-shooters using a camera rig. Also enhancing its video capabilities, the new optical design suppresses focus 'breathing', ensuring the image doesn't change during focusing. The new lens's AF drive uses a 'Silky Swift' voice-coil motor (SSVCM) which Nikon says is its fasted autofocusing motor ever and five times faster than before. Additionally, the AF tracking performance during zooming has been enhanced by around 60 percent.

NIKKOR Z 24-70mm 1:2.8 S II
NIKKOR
24-70/2.8 S II

The minimum focusing distance is 24 centimetres at 24mm and 33 centimetres at 70mm compared to the previous model's 38 centimetres and this increases the maximum magnification ratio to 1:3.1 (close to one-third lifesize) compared to 1:4.5 (which is less than one-quarter lifesize). The new lens's diaphragm now has 11 blades (up from nine) to give smoother out-of-focus effects. The minimum aperture setting is f/22.

The Nikkor Z 24-70mm f/2.8 S II is priced at $4599 and is available now. Nikon Australia provides a two-year warranty for Nikon cameras and lenses purchased from an authorised reseller. For more information visit **www.nikon.com.au**



Building your Instant AI Profile

This will only take a few seconds...

AFTERSHOOT LAUNCHES INSTANT AI PROFILES FOR SPEEDIER STYLE CREATION

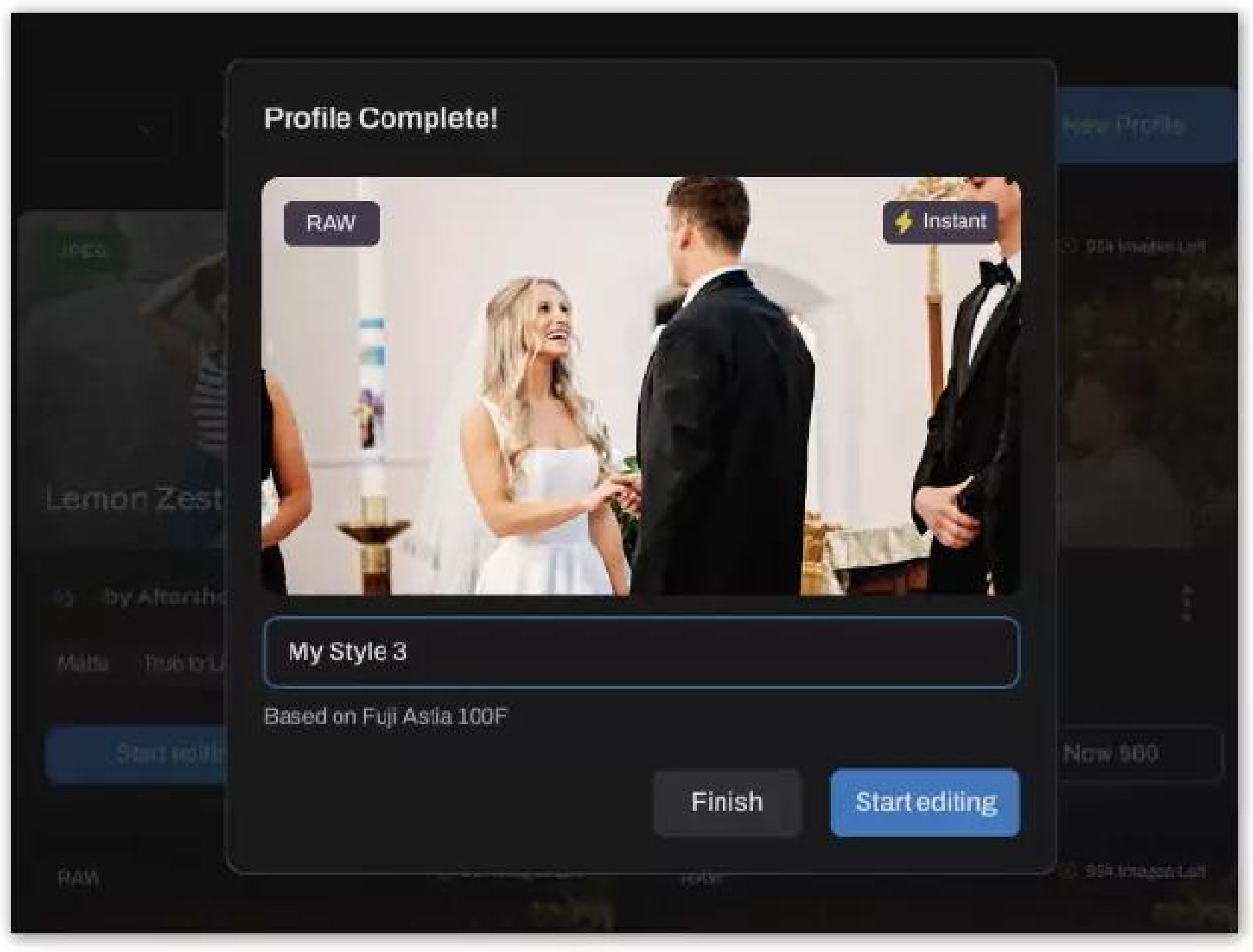
IMAGE EDITING AND processing software maker Aftershoot has introduced Instant AI Profiles which, it says, can be built in less than 60 seconds. The Instant AI Profiles use an Adobe Lightroom Preset on which to build an AI-powered profile that can then be intelligently applied to all your images. Aftershoot is an AI-powered platform designed to streamline post-production workflows for both enthusiast and professional photographers

The key aspect of Aftershoot's technology is that it turn's Adobe Lightroom presets into AI profiles so no image uploads are required. Previously, creating an AI profile required a substantial library of images to provide the necessary analysis – or 'learning' – which, consequently, involves a lot of time. However, as your library grows you can then seamlessly upgrade to Aftershoot's Professional AI Profiles which will give more maximum precision the more you edit.

Creating an Instant AI Profile involves simply uploading the Lightroom Preset's xmp file and then tuning the AI Profile via a three-step process which involves exposure, temperature and tint. Click 'Generate Profile' and it's done. Aftershoot notes that, unlike Lightroom's presets which apply a fixed look across every photo, the Instant AI Profiles apply a style more intelligently – adjusting for lighting, camera model and the scene context to deliver smarter, more tailored edits. The Lightroom Presets generally require some subsequent fine-tuning with images that exhibit different lighting set-ups, colours and tones.

Justin Benson, who is the co-founder of Aftershoot says, "With Instant AI Profiles, we're removing wait time that arises due to lack of training datasets photographers can provide from the get-go. In just a minute, photographers can see their look intelligently applied across a gallery. It's the fastest way to get from preset to adaptive edits, while still opening the door to future growth with the Pro AI Profiles."

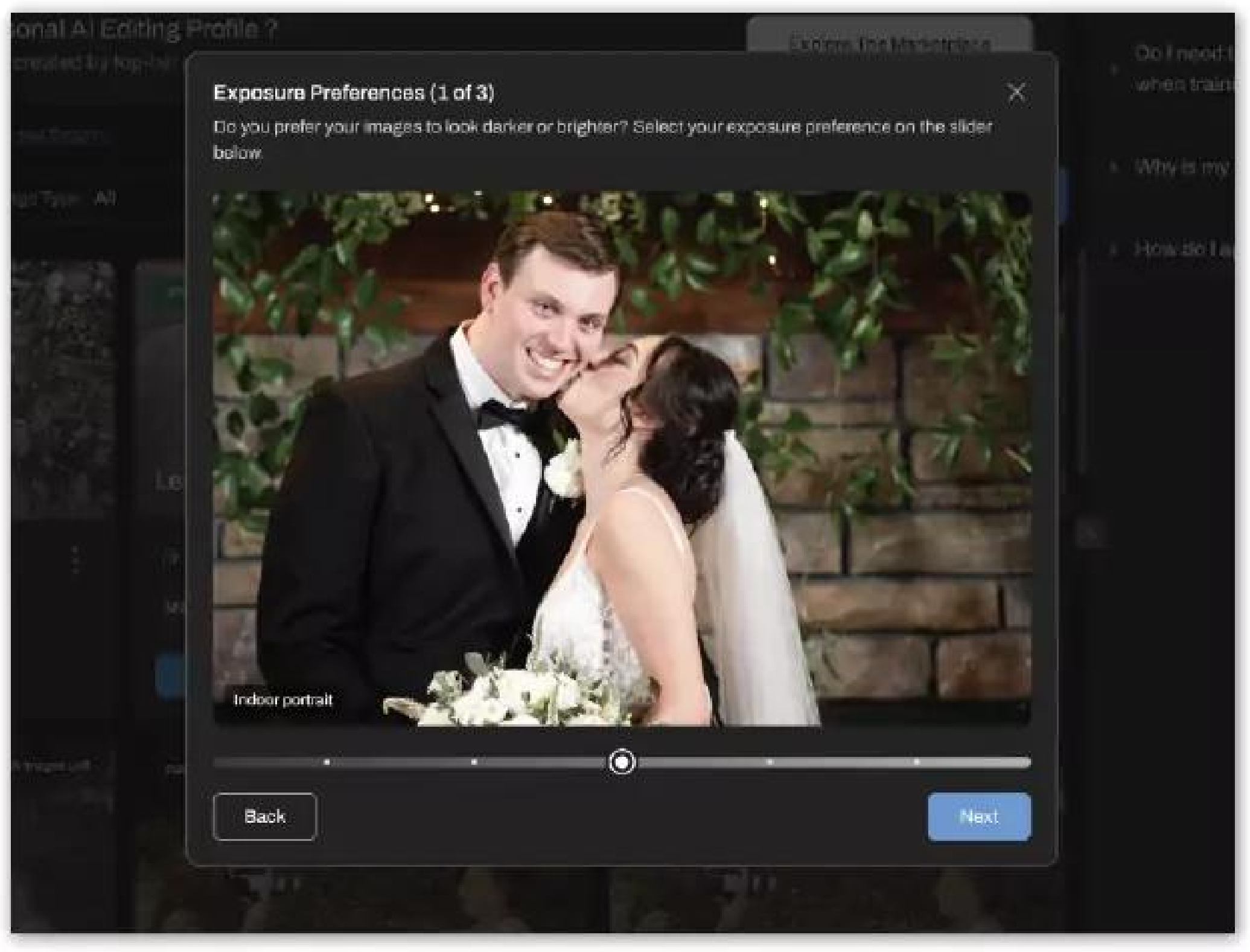
Instant AI Profiles are included with Aftershoot Pro and are available now. The software company is celebrating the launch of Instant AI Profiles by allowing new users to claim a 30-day free trial, with their first month of Aftershoot Pro costing just US$15 (usually US$48 per month). Visit **https://aftershoot.com/instant-profile**



Profile Complete!

My Style 3

Based on Fuji Astia 100F



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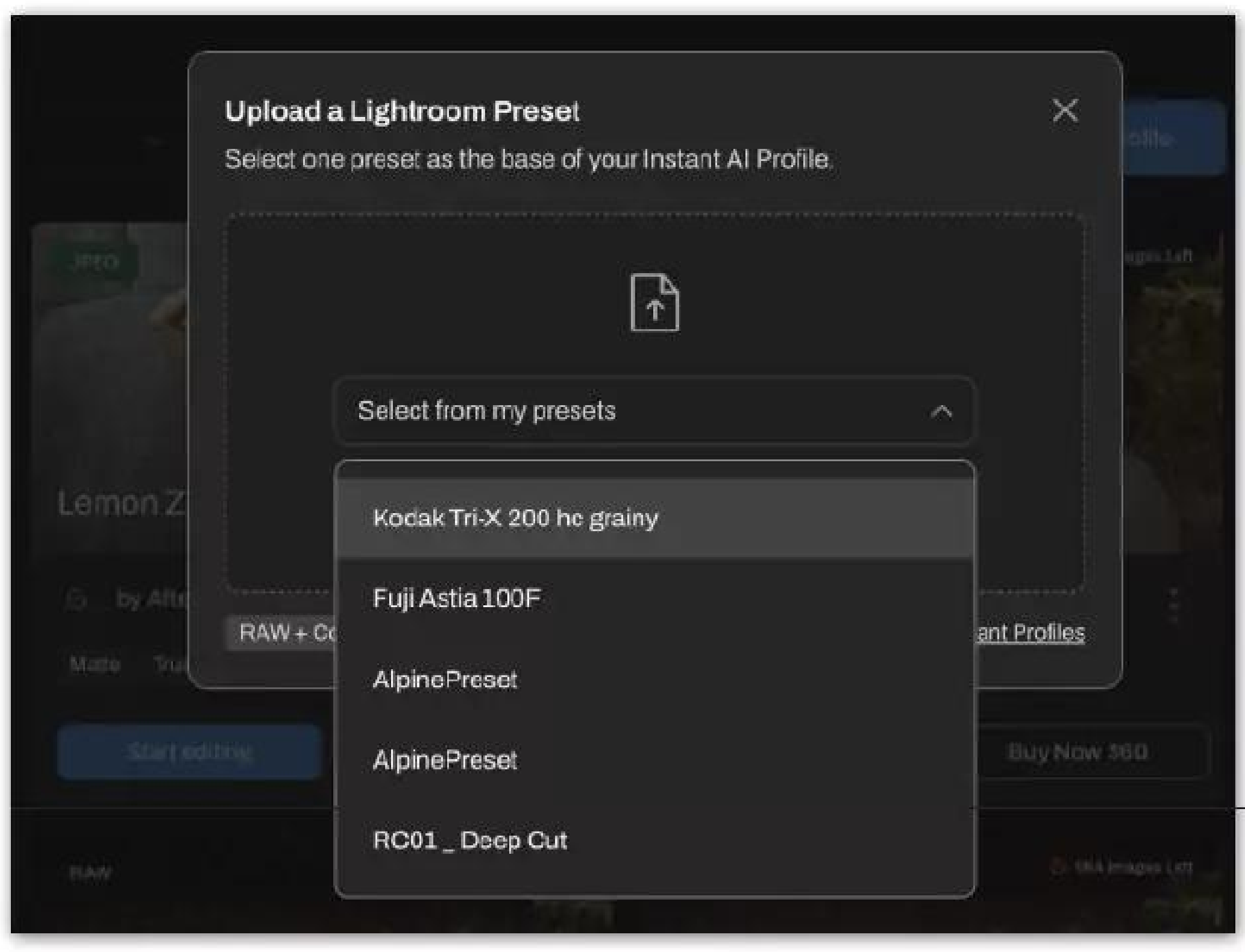

Upload a Lightroom Preset

Select one preset as the base of your Instant AI Profile.

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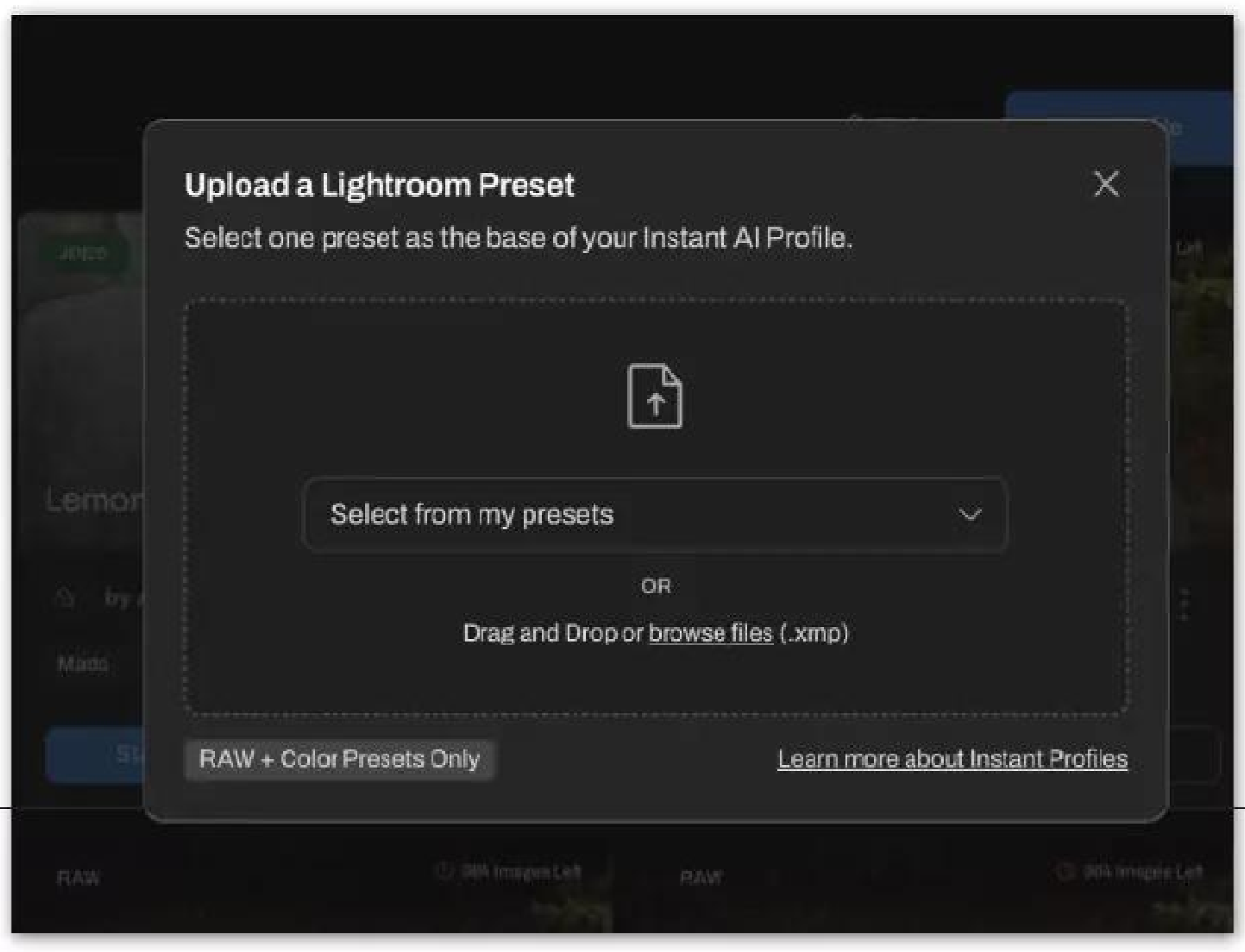
- Fuji Astia 100F
- AlpinePreset
- AlpinePreset
- RC01 _ Deep Cut



Upload a Lightroom Preset

Select one preset as the base of your Instant AI Profile.

Select from my presets

OR

Drag and Drop or browse files (.xmp)

RAW + Color Presets Only

Learn more about Instant Profiles

Camera House

Credit | **Street photography by Peter Morris**
Peter works at Cairns Camera House. He shot this beautiful quiet moment in a busy environment with a classic: the Nikon J1 camera together with the 1 Nikkor 10mm f/2.8 lens.

RICOH'S GR IV COMPACT IS THE SAME BUT DIFFERENT

WITH A HERITAGE dating back to 1994 and the original 35mm R1 model, Ricoh hasn't messed very much with the formula that has made the digital GR series an enduring best-seller. The new GR IV is still super slim with a smart magnesium alloy body, a fixed 28mm-equivalent prime lens and an 'APS-C' size sensor. There's a modest increase in the sensor's resolution – up from 24 megapixels to 25.74 – but it's now a backside-illuminated (BSI) design to enhance sensitivity and, as a result, the high ISO performance in particular. Also helping here is a new processor – the GR Engine 7 – which Ricoh says delivers improved noise reduction along with more accurate colour reproduction for JPEGs. The sensitivity range is increased from ISO 100 to 204,800.

The lens is also redesigned, gaining an additional aspherical element in its seven-elements (five groups) optical design to enhance corner-to-corner sharpness. There's also a new anti-static anti-grime coating on the front element. As before, the lens construction employs high-refraction and low-dispersion glass and has an aperture range of f/2.8 to f/16. A built-in ND filter is retained and gives a two-stops reduction in exposure. The lens barrel is fractionally shorter so there's an improvement in the camera's start-up time which is now 0.2 seconds or 25 percent faster. Revised algorithms for the hybrid contrast/phase-detection AF system are said to benefit both its speed and accuracy.

Image stability is provided by sensor shifting and the GR IV steps up to five-axis movements (compared to three previous), giving an increase in the correction for camera shake from four stops to six. Internal data storage is increased from just 2.0 GB to a whopping 53 GB, but the memory card slot is now for the smaller microSD devices rather than the full-size types. There's a bigger battery with provisions for in-camera charging via a USB C port. The new battery probably accounts for a slight increase in the overall weight by five grams, but at 262 grams, the Ricoh GV IV is still by no means a heavy camera.

The new camera's fixed 7.62 cm monitor screen is unchanged from the previous model and has a display resolution of 1.06 megadots with touch control. There have been some revisions to the control layout which still centres around a main mode dial with front and rear input wheels but gains a plus/minus lever for operations such as applying exposure compensation (and which was last seen on the GR II). Also, the rear panel command dial is replaced by a multi-directional keypad which is more intuitive in its operation. A new function is called 'Program Auto Ex' and allows for quick shifting from the program exposure mode to either aperture-priority auto using the front input wheel or to shutter-priority auto via the rear wheel. Also new is a 'Snap Distance-Priority AE' exposure control mode – marked as 'Sn' on the main mode dial – and which essentially prioritises depth-of-field. The list of 'Image Control' picture effects include a new Cinema mode with a choice of yellow or green tones for a nostalgic cinematic look in stills. In terms of shooting video, however, the GR IV still only records at the Full HD resolution and at up to 50/60 fps with the H.264 codec.

There's both WiFi and Bluetooth LE connectivity, delivering image transfer and remote camera control via Ricoh's 'Image Sync' app. Accessories for the GR IV include a wide-angle conversion lens which delivers the equivalent of a 21mm focal length (and an angle-of-view of 90 degrees). There's also a new compact and low-profile accessory flash unit called the GF-2 which has a metric guide number of three at ISO 100.The Ricoh GR IV is priced at $2200 and available at the end of September. Ricoh cameras are distributed in Australia by C. R. Kennedy Photo Imaging and for more information visit **https://crkphotoimaging.com.au**

PHOTOGRAPHY EXHIBITIONS & EVENTS

Current to 19 October: Exhibition. *Wildlife Photographer of The Year 2024.* 100 winning and finalist images from the 60th edition of the world's biggest competition for wildlife and nature photography. At the Australian National Maritime Museum, 2 Murray Street, Darling Harbour, Sydney, NSW 2000. Entry fee is $25 for adults with concessions for children under 15 (and a $70 fee for families). Museum hours are 10.00am to 4.00pm daily (9.30am to 5.00pm during school holidays). For more information and bookings visit **www.sea.museum/whats-on/exhibitions**

Current to 19 October: Exhibition. *Olive Cotton And Her Contemporaries.* This exhibition brings together Cotton's photographs and the work of her leading international peers including key modernist photographers such as Dora Maar, Berenice Abbott, Lucia Moholy, Edward Weston and Tina Modotti. At the Hawksbury Regional Gallery, Deerubbin Centre (Top Floor), 300 George Street, Windsor, NSW 2756. Gallery hours are 10.00am to 4.00pm Monday and Wednesday to Friday, 10.00am to 3.00pm on weekends. Entry is free. For more information visit **www.hawkesbury.nsw.gov.au/gallery/exhibitions**

Current to 19 October: 11th Ballarat International Foto Biennale. Over 60 days of events and exhibitions in and around the city of Ballarat. BIFB headquarters is at 12 Lydiard Street North, Ballarat, Victoria 3350. Ticket prices may apply. For the latest program details visit **ballaratfoto.org** The festival will include the opening of the ground floor gallery of the National Centre For Photography in early October. At 4 Lydiard St South, Ballarat, Victoria 3350.

Current to 31 December: Exhibition. *PIX: The Magazine That Changed Everything.* PIX was Australia's first pictorial news weekly and hit newsstands in January 1938. It delivered a new style of journalism, using photographs to tell daring stories of modern life. At the Photography Gallery, State Library Of NSW, 1 Shakespeare Place, Sydney, NSW 2000. Entry is free. Exhibition hours are 9.00am to 8.00pm Monday to Thursday, 9.00am to 5.00pm on Friday, 10.00am to 5.00pm on weekends. For more information visit **www.sl.nsw.gov.au**

7 – 30 November: Exhibitions, workshops and events. Head On Photo Festival 2025, Sydney. Major exhibitions are at Bondi Pavilion Gallery and outdoor displays throughout Paddington Reservoir Gardens and along Bondi Beach. Festival launch is on 7 November. Exhibitions are free. Visit **headon.org.au/festival for more details.**

6 December to 22 February 2026: Exhibition. *Olive Cotton And Her Contemporaries.* This exhibition brings together Cotton's photographs and the work of her leading international peers including key modernist photographers such as Dora Maar, Berenice Abbott, Lucia Moholy, Edward Weston and Tina Modotti. At the Gippsland Art Gallery, 70 Foster Street, Sale, Victoria 3850. Gallery hours are 9.00am to 5.30pm Monday to Friday, 10.00am to 4.00pm on weekends. For more information visit **www.gippslandartgallery.com**

14 March 2026 to 10 May 2026: Exhibition. *Olive Cotton And Her Contemporaries.* This exhibition brings together Cotton's photographs and the work of her leading international peers including key modernist photographers such as Dora Maar, Berenice Abbott, Lucia Moholy, Edward Weston and Tina Modotti. At the Cowra Regional Art Gallery, 77 Darling Street, Cowra, NSW 2794. Gallery hours are 10.00am to 4.00pm Tuesday to Saturday, 10.00am to 2.00pm on Sunday. For more information visit **www.cowraartgallery.com.au**

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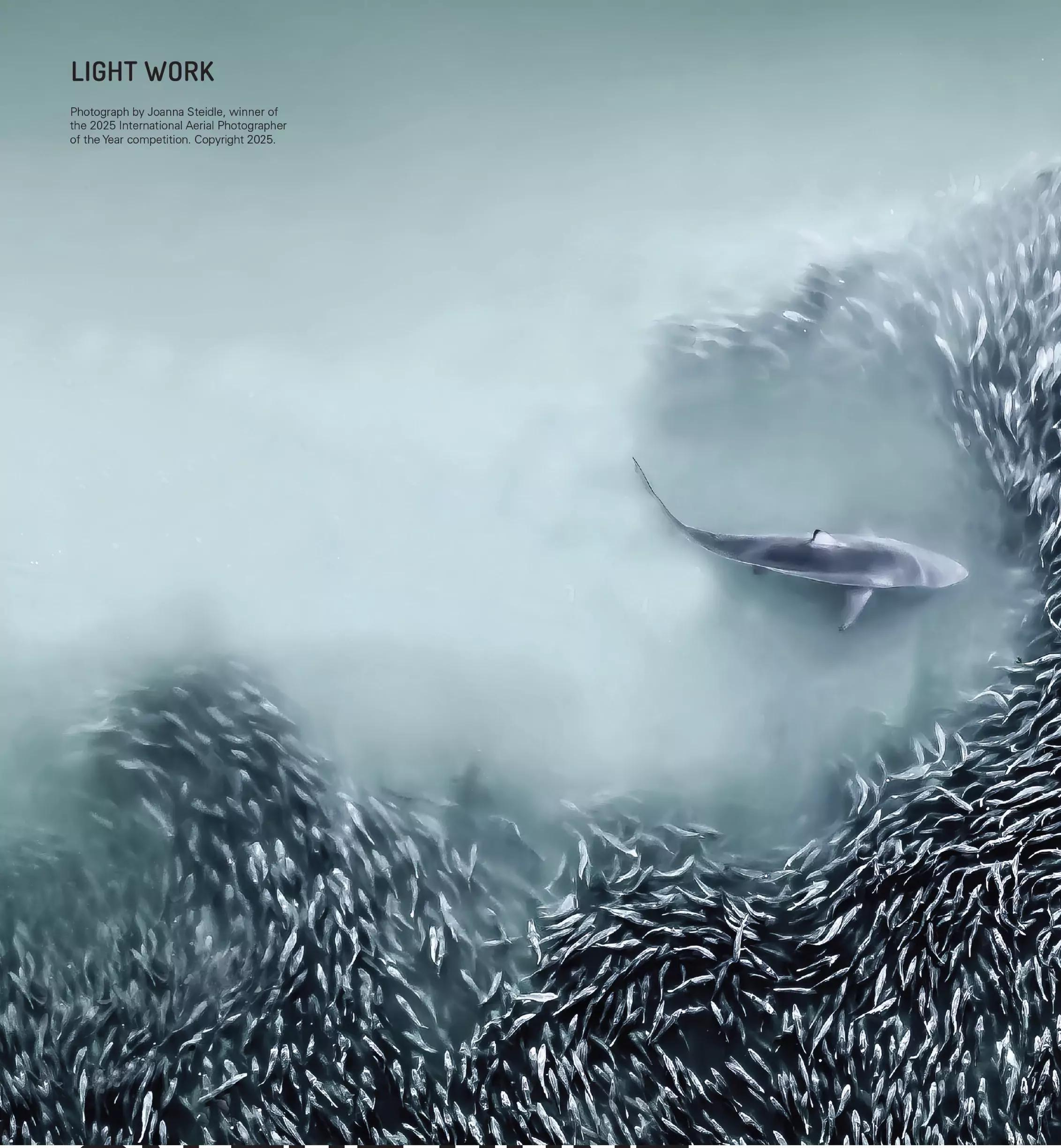
Photograph by Joanna Steidle, winner of the 2025 International Aerial Photographer of the Year competition. Copyright 2025.



ON THE HUNT

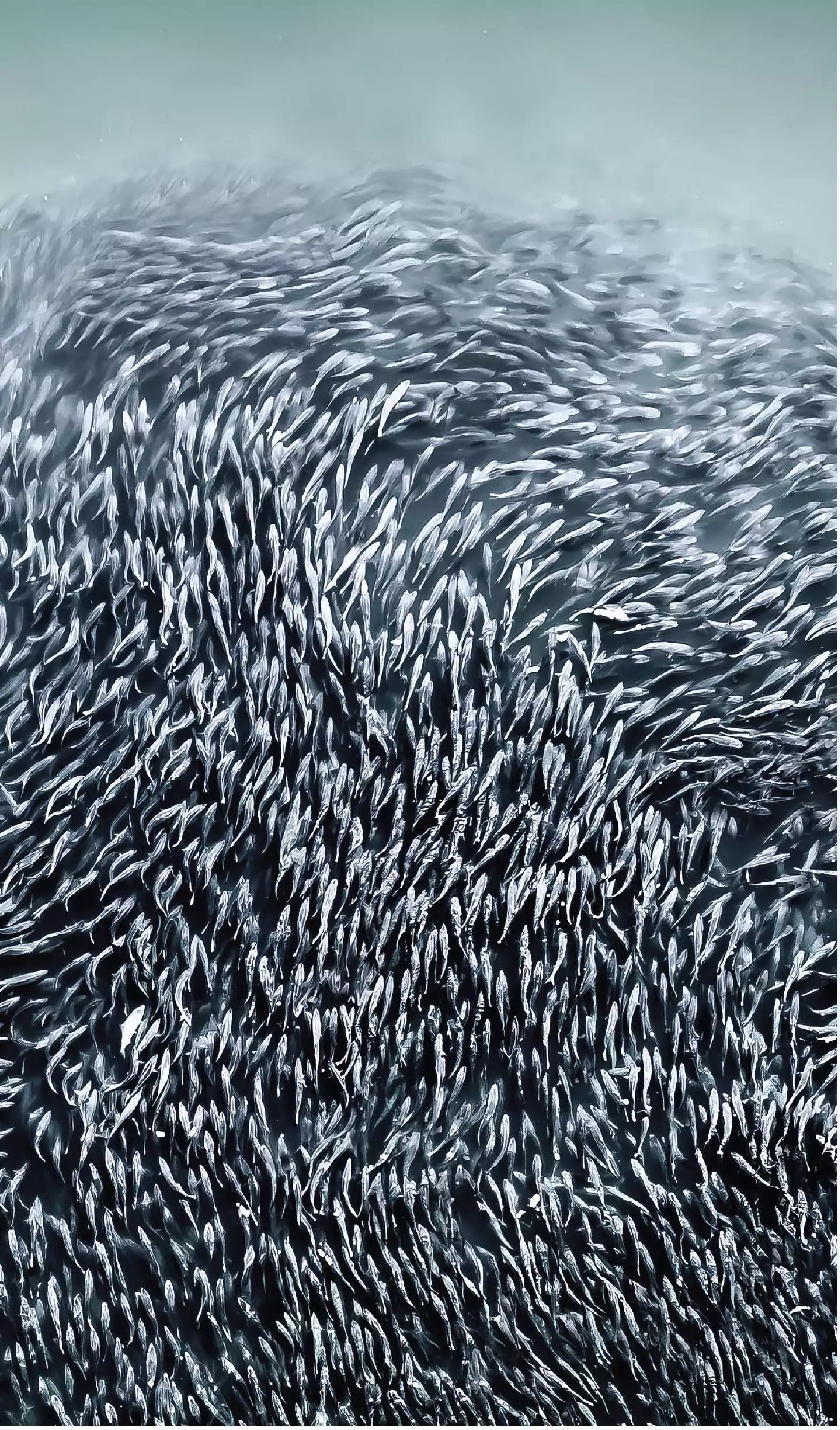
The Picture

Titled *The Gateway*, this aerial photograph was one in a portfolio of four stunning pictures which won inaugural International Aerial Photographer of the Year competition for American Joanna Steidle.

The Photographer

Joanna Steidle is a professional drone pilot, photographer and artist who is based in the Hamptons on Long Island, New York state.

"Aerial photography offers so many possibilities not yet explored," she says. "Every day is exciting as I look for unique subjects and moments. I try to stay away from the ordinary. I live in a very flat landscape, so top-down imagery has become quite a theme in my photos which happens to work well with my love for marine life".



The owner of Hamptons Drone Art, Joanna specialises in fine-art drone photography, videography and FPV flights. Her clients have included National Geographic, Discovery channel, the BBC, Hulu, Forbes and many news outlets.

The Equipment

Joanna flies a DJI Mavic 3 Pro, a DJI Mini 4 Pro and an Avata 2 fitted with an Action 5 Pro camera. She also uses a DJI Pocket 3 for handheld filming.

The Story

A spinner shark hunts in a school of menhaden bait fish in the Atlantic Ocean off Southhampton, New York state, USA.

"I followed this shark for a good 20 minutes", Joanna explains. "I was watching and waiting for a pleasant composition where both the shark and the fish were very close to the surface for optimum clarity.

"New York's Atlantic beaches are like a second home to me and while I feel my smallness in the world there, it's where I can easily find peace and contentment. Our coastline has rebounded with a plethora of sea creatures in the past few years. This is due to an increase in menhaden forage fish which attract larger predators closer to shore. I've seen a humpback whale take in and spit out a cormorant while lunge feeding, and a seagull trying to land on a dolphin breaking the surface! I'm never surprised, but always amazed at what I see from the sky."

You can see all the 'Top 101' finalist pictures in the 2025 International Aerial Photographer of the Year competition at **internationalaerialphotographer.com** You can also view and download the 2025 competition e-book from this site. A print version of this book is also available to purchase.

To see more of Joanna Steidle's photography visit **joannasteidle.com**

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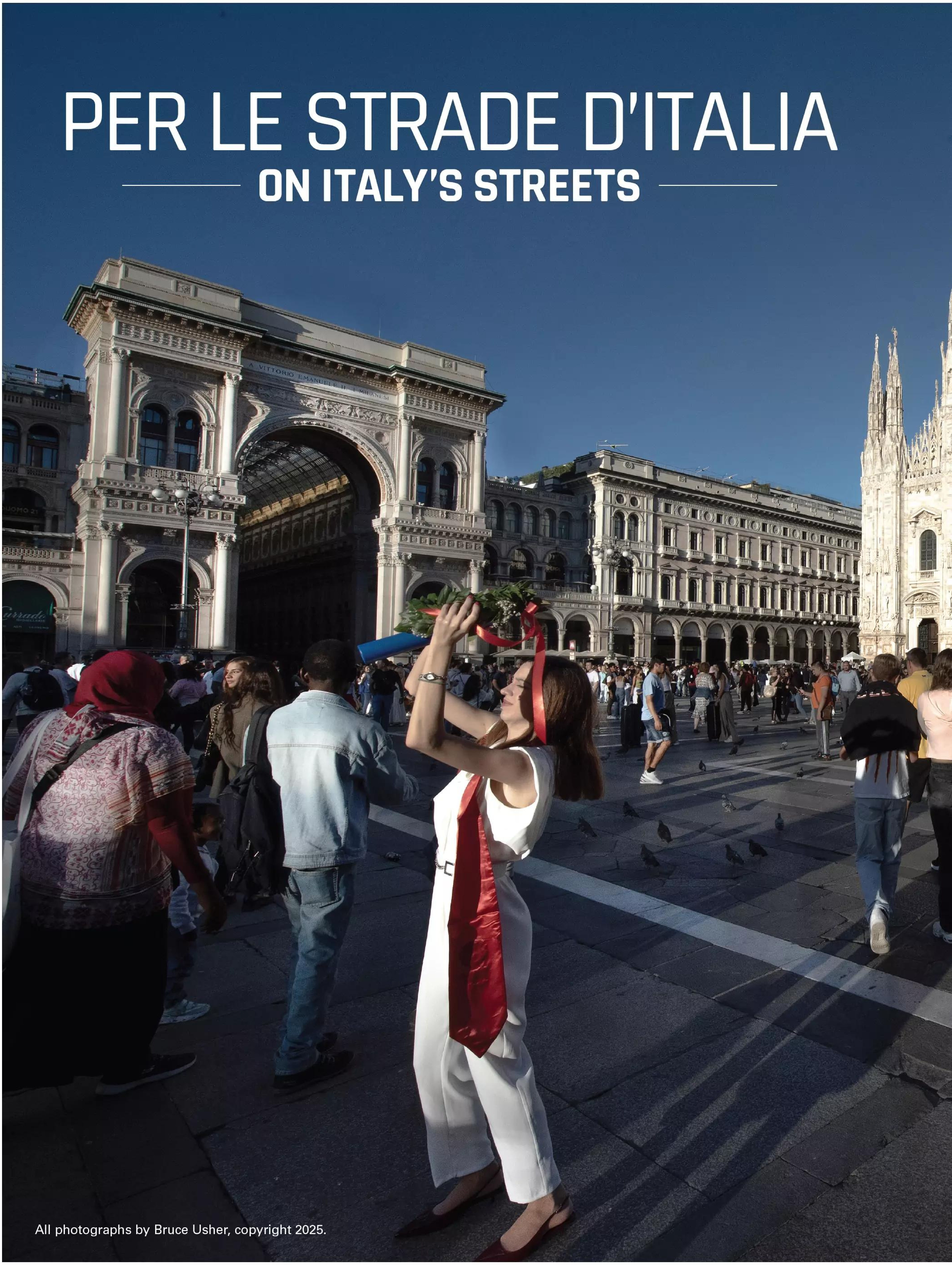

A VITTORIO EMANUELE II I MILANESI

All photographs by Bruce Usher, copyright 2025.

Renowned street photographer Bruce Usher kept a travel diary on his last trip to Italy and these extracts provide some background to his images capturing life on the lively strade of Rome, Bologna, Milan and desitinations beyond.

▲ I had been walking for hours in Rome and stopped not far from the Tiber River as a gelato shop was opening. I walked in and had a chat and took a few portraits.

Rome, 6.30am: It's my first day in Italy. In my camera bag is one DSLR body and three lens – a 50mm prime, a 20-35mm wide-angle zoom and an 80-200mm telezoom. Minutes later, after taking the 50mm out of the bag, I'm standing on Viale Marco Polo waiting for bus No. 30 heading in the direction – I hope – of where I think Rome's centre is! It's a workers bus, and no English is spoken. I soon realise that I'm heading in the wrong direction. Eventually the bus loops back to where I got on and I jump off. Walking was – and now is my preferred option – so I head towards the Tiber River to cross over into the Trastevere district – a funky, bohemian, non-touristy, hidden side of Rome. Two nuns standing next to a small teal-coloured car against a background smeared with graffiti are photographed. I've got the first shot in the bag; I'm on a roll. Shortly after I re-crossed the Tiber River into the Saint Angelo district and into the main historic areas where I used the 20-35mm zoom most of the time.

On my last day in Rome, I leave my B&B at 6.00am for the Roma Ostiense railway station. My destination is Sulmona, about two hours away to the east. At the station I'm told, "I don't know if you can get a regional train today! I think it's a rolling strike. Go to the Tiburtina station and see what's happening."

Arriving there, I look at the huge destination board at Tiburtina and see that 80 percent of the regional trains are cancelled. I breathe a sigh of relief when I see that my train – with a final destination of Pescara on the Adriatic coast – is still running. Relaxed and sitting in my seat at 7.05am, I'm thinking that maybe I've beaten this rolling strike. No, I haven't. As 7.30am rolls past, people are starting to get off one by one. It's been cancelled. At the station

▼ University students in a park in Bologna. Alfonso Lorenzano (left) and Ivan Scano (with glasses and cap).

office, the queue is short, and they suggest I can get a train to Avezzano which is about halfway to Sulmona. About 10.00am while I'm waiting for the platform number to come up on the board, a well-dressed, but possibly homeless guy comes past asking for money. I reply, "No, only cards". Thirty minutes later, he walks past again and asks if I can buy him something on my card. Just seconds later my train to Avezzano is cancelled. My last day in Rome has now become my second last day in Rome. I felt like hopping on a plane and going home, but that soon flipped into an extra half-day of photography in Italy's capital.

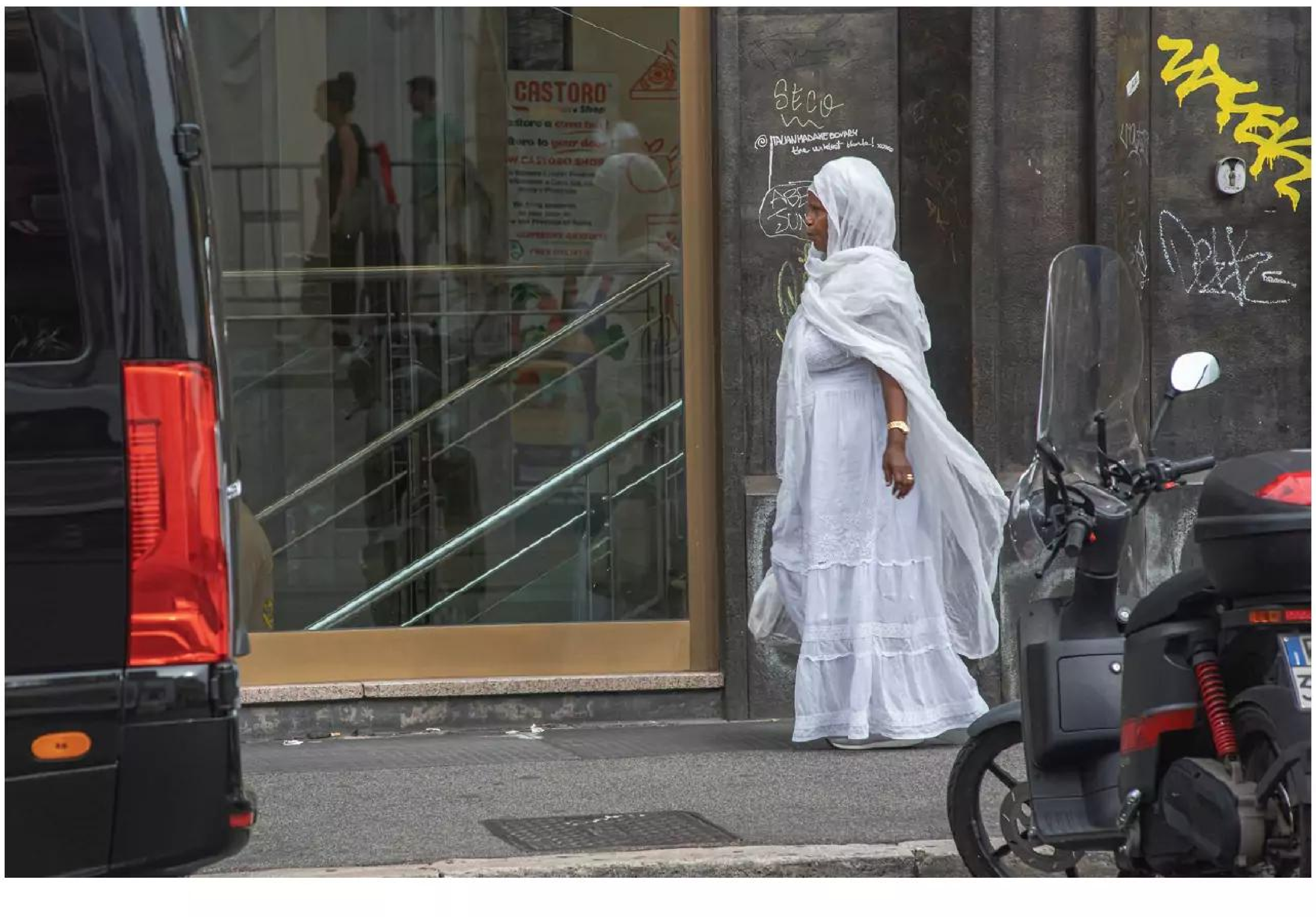
The cab rank is found and I jump into a F1 taxi – not a brand, but a description of this driver's speed, prowess and skills – a wonderful experience. I find a new B&B in the Esquilino area of Rome. Late in the afternoon, I'm sitting on the side wall of a fountain in the Piazza di Santa Maria Maggiore in warm, soft light and my eyes pick out a floating white apparition emerging from the shadowy end of the square. The apparition comes into sharp focus through my 80-200mm lens. A dark-skinned woman covered head-to-toe in white and moving into frame, between a red vertical taillight and a red motorbike, another gem.

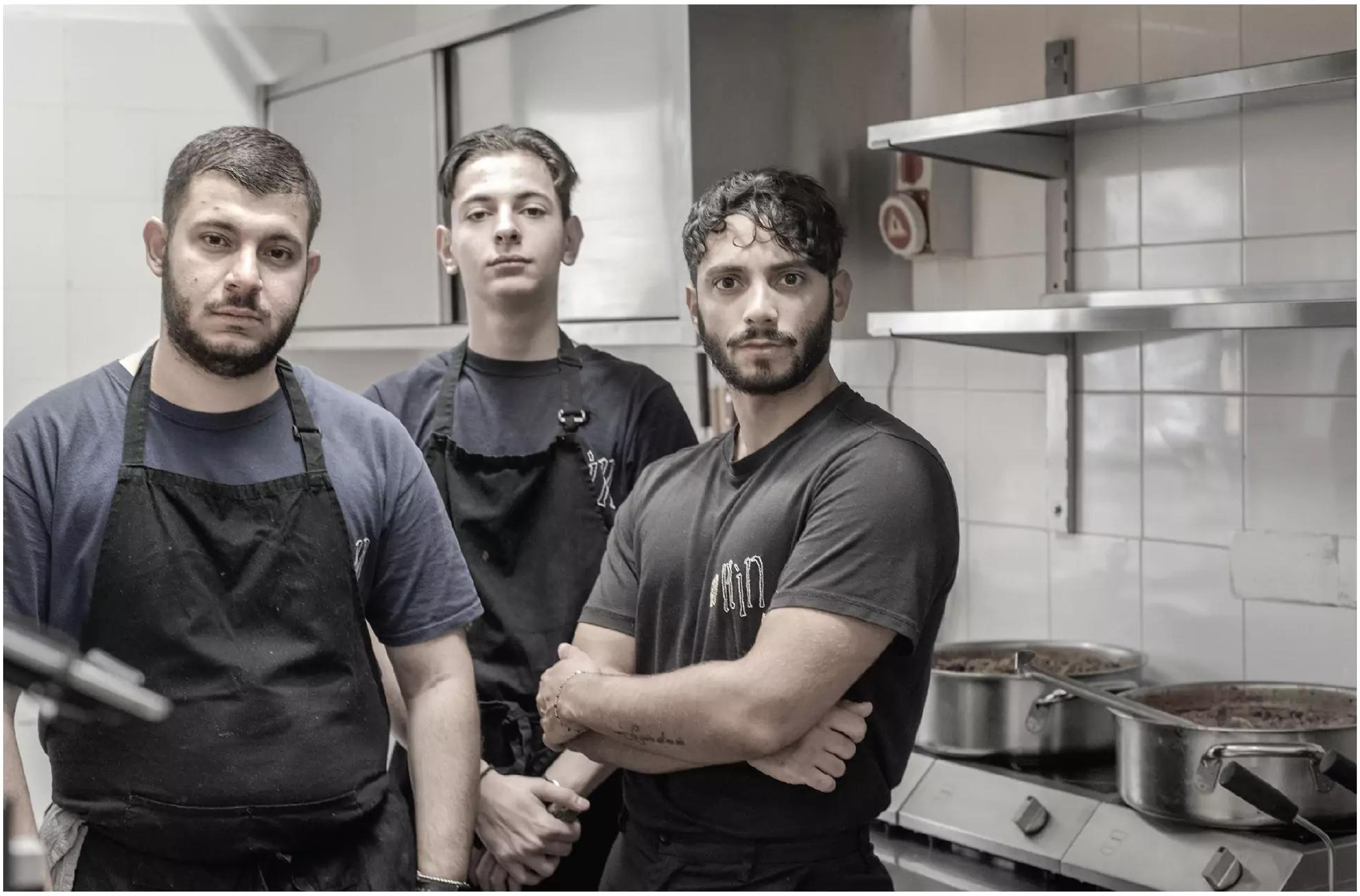
Porticoes And Pickpockets

The next morning I finally catch the train to Sulmona. A Frenchman from Toulouse was sitting diagonally opposite me, and he pulls out a telephoto lens from a backpack. Then he sees my camera bag and a conversation starts. I show him a small book of my street photos, and he asks, "Do you ask people if you can take their photo?" "Never," I reply. "Ask and you may get a nicer or better portrait, but not what you originally saw." The train conversation continues until my new friend from Toulouse gets off. Later, I photographed Giovanni Vaccaro who was sitting opposite me and, I find out, was moving from Rome to Pescara to train as a professional boxer.

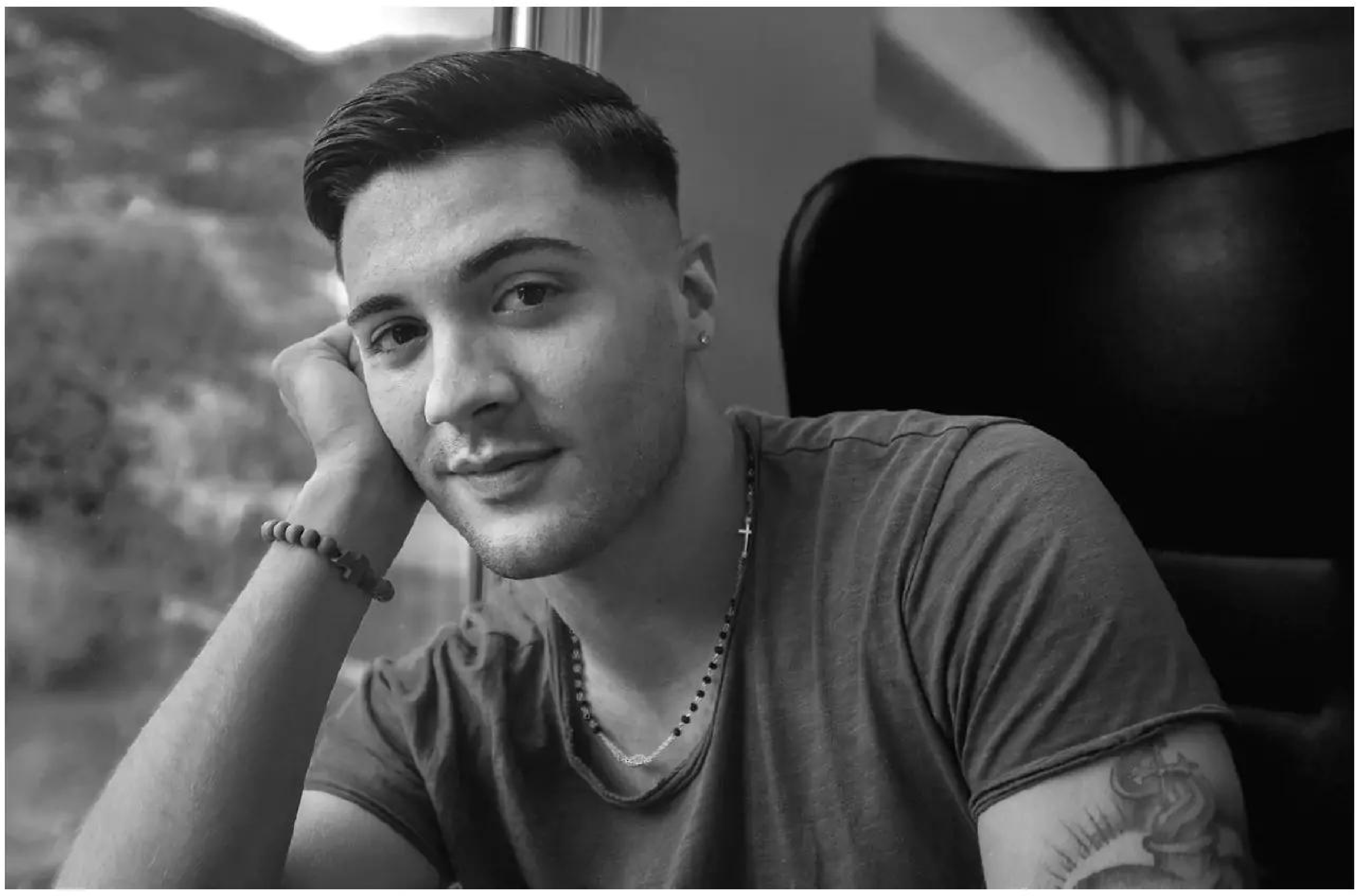
One evening, while I'm staying in Bologna, my 20-35mm zoom rolls off the

> "I'm sitting on the side wall of a fountain in the Piazza di Santa Maria Maggiore in warm, soft light and my eyes pick out a floating white apparition emerging from the shadowy end of the square."





▲ PLIN Pastificio Con Cucina is a fresh pasta shop and cafe in Milan. From left to right; Andrea, Alessio the apprentice, and Nicholas.



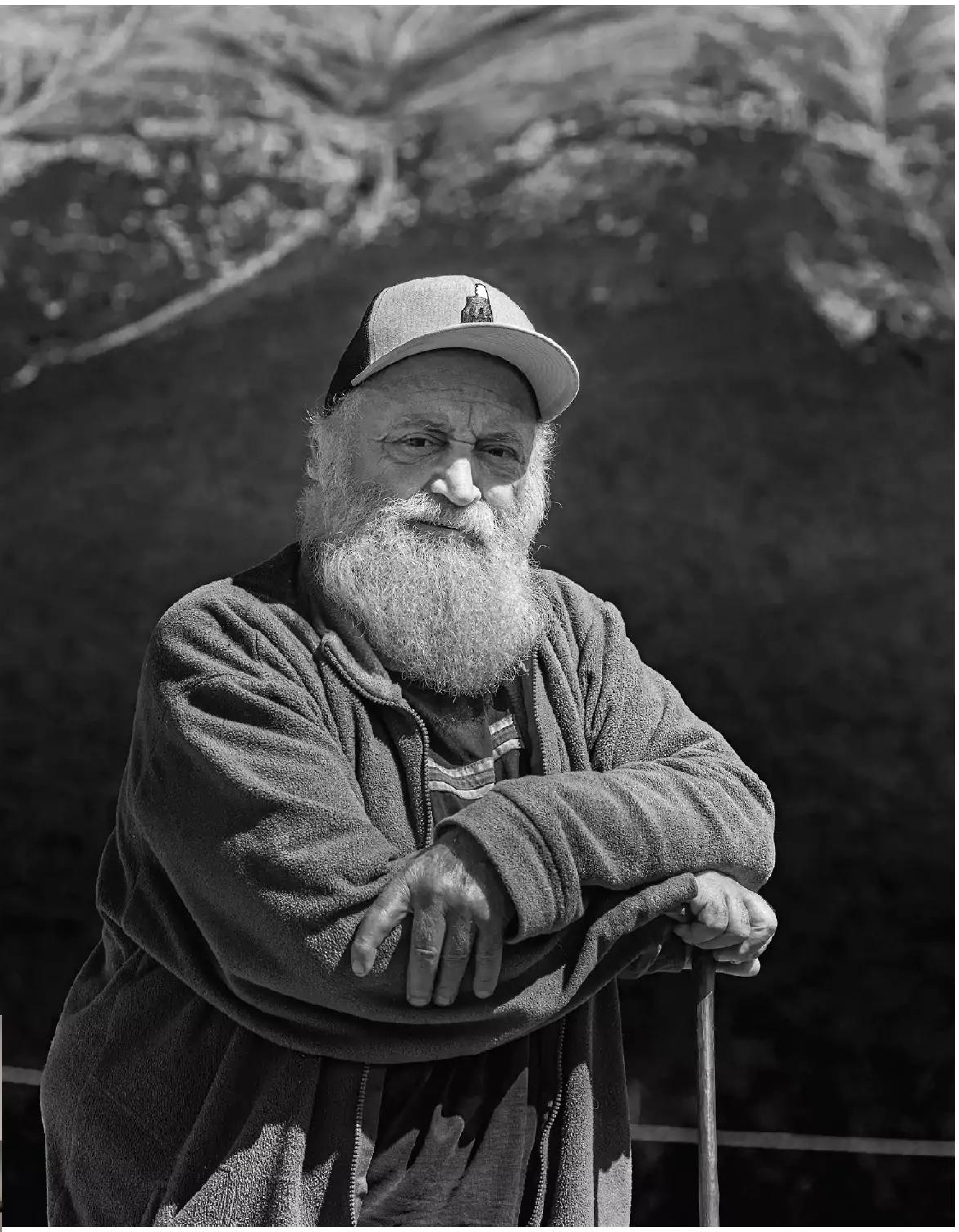
▶ On the train from Rome to Sulmona. Giovanni Vaccaro is heading to Pescara – on Italy's east coast – to train as a boxer.

> I can see a woman just ahead of me and her left arm looks like it's supposed to be cradling a baby in a sling. "Monsieur! Monsieur!" she shouts as she grabs my left arm.

couch and bangs onto the floor. The next morning, it gave me three images and then died. The following day, I take the 80-200mm zoom lens out for an early walk, photographing the porticoes. No other city in the world has as many porticos as Bologna and they cover more than 38 kilometres in the historic centre. Two hours later, I walked back into the same porticoed area with my partner. I can see a woman just ahead of me and her left arm looks like it's supposed to be cradling a baby in a sling. "Monsieur! Monsieur!" she shouts as she grabs my left arm. I break free, but clearly, I was seen as a target as my camera with the telephoto lens was over my right shoulder. I turned and walked up a steepish street, but she follows and I'm grabbed on the left arm from behind as she again yells "Monsieur! Monsieur!" This time I shout back, "Don't come near me again." But it's too late. She quickly disappears. Three hours later I realise that she'd managed to take 90 euros from my right pocket.

New And Old

In Milan I go to a major exhibition of 300 of Robert Capa's photographs at the Diocesan Museum. The show includes 26 images from the Spanish Civil War, among them his most famous picture, *Death of a Loyalist Soldier*. There are also photographs of the Allied landing in Normandy on D-Day. Capa was one of the founders of the Magnum photo agency and, in 1948, he travelled through Stalin's Russia with the author John Steinbeck, creating the seminal book, A Russian Journal.



▲ Portrait of a shepherd in the Montagne del Morrone, a mountain group in Abruzzo, central Italy, and part of the Apennines range.

◀ The New and Old Camera store in Milan with Claudio sitting behind the counter.

Then, in Macerata – a much smaller and more laid-back city not far from the Adriatic coast and with seemingly very few tourists – I see a photography exhibition by Christian Tasso who is an Italian-born, photographer now based in New York. His project on diversity, titled *Nobody Excluded*, has been presented at the United Nations headquarters.

Hunting for a replacement wide-angle lens in Milan, I find the New Old Camera shop in Viale San Michele del Corso. After entering, I'm immediately taken back to the gentler pre-digital world of Sydney camera shops where they knew your name and got you a coffee. New Old Camera is a prosumer/professional shop and salesman Claudio introduces himself to me. We chat, keep chatting and after 20 minutes he walks to the Nikon second hand display case and returns with a 14-24mm f2.8 wide-angle zoom which is in great condition, so I buy it. After an hour or so, I leave the camera store to pick up my partner from the nearby coffee shop. She sees me coming and starts to leave. "*Signora non ha ancora pagato il caffè*", comes a loud voice from the back of the coffee shop, combined with some head-shaking. My partner had forgotten to pay for her coffee. The bill now paid, I take her back to the camera store where we chat with Ryuichi, the Japanese owner, who is also a singer. Leaving us, he starts singing an operatic aria in rich tenor voice.

I try very hard not to take clichéd photos in Milan's busy Piazza del Duomo where my new lens is initially let loose. I think I got six good images… and they are my clichés.

Three days after arriving back in Sydney, I download my RAW files from the time in Bologna and there, staring at me from my computer's monitor screen, is my pickpocket. Unknowingly, I had photographed her earlier on that day with the 80-200mm zoom!

To see more of Bruce Usher's Street photography go to **bruceusher.com.au** His coffee table book, Coast Tree Street, is also available to buy by contacting Bruce via this site.

▼ Portrait of Armando from Delizioso!, a stop on Milan's Favourite Food Tour.

polaroid
4 X HYPERFOCAL
SONAR AUTOFOCUS
94-109mm
1:9

POLAROID FLIP

Report by **Paul Burrows**

EVERYTHING OLD IS NEW AGAIN

Our enduring love of instant film cameras has seen the sector enjoy continuous growth in the digital era and convinced the re-incarnated Polaroid to reprise another old favourite. The new Flip pays homage to arguably the most popular of the vintage Polaroid design, but also delivers the conveniences of contemporary features.

There have been a number of distinctive camera design phases in Polaroid's history. As was common at the time, the very first models were 'folders' – i.e. cameras with a flexible, bellows-type 'body' – and, after the earliest models from the 1950s which used an instant roll film, Polaroid continued with this configuration through the 1960s and '70s with the cameras that used the more convenient peel-apart print films that came in an easy-to-load pack. These included Polaroid's first 'Polacolor' colour film which introduced in 1963 (although this stock was also available in a roll format), and the cameras were quite advanced with glass lenses and a Zeiss viewfinder. As it worked to increase the appeal of instant photography, Polaroid ventured into using plastics for rigid-bodied cameras such as the famous Swinger.

New camera designs were, by and large, the result of major advances in Polaroid's instant film technologies and the biggest of these came in 1972 with the 'integral' instant film so-called because it contained everything within the print needed to develop an image after it was ejected from the camera. SX-70 film was the first self-timing, daylight-developing, non-peel-apart instant photography material and the SX-70 camera was equally revolutionary. It was the world's first folding reflex-type camera, the first to incorporate a fully automatic exposure system and the first to have built-

> LIKE ALL THE CURRENT POLAROID INSTANT CAMERAS, THE FLIP IS A MIX OF THE OLD AND THE NEW."

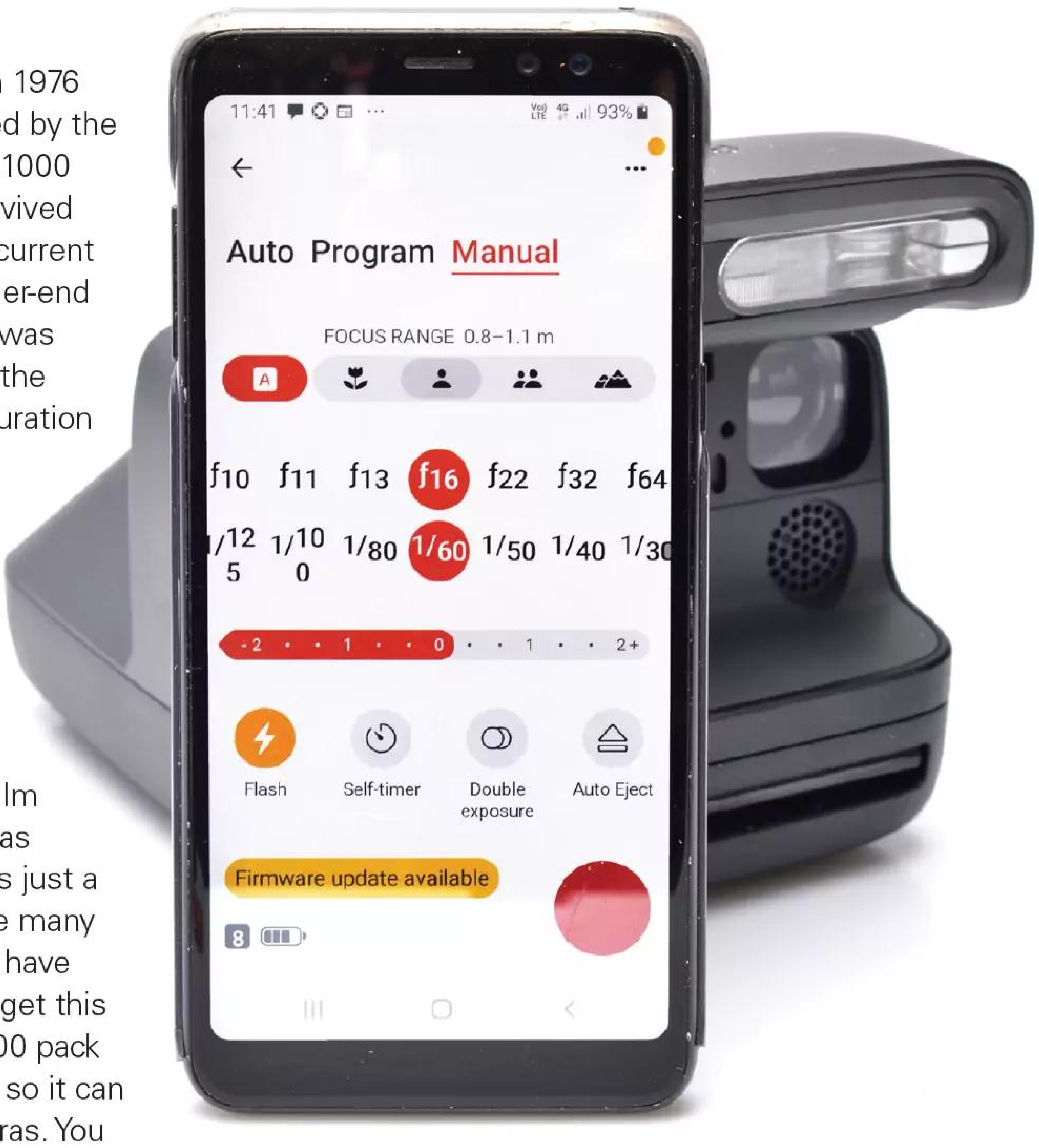
in electronic monitoring of its functions which prevented operation if something was wrong. Another first was that the prints were now automatically ejected after exposure, rather than needing to be manually extracted. Ingeniously too, the camera was powered by a battery contained in the film pack. Not surprisingly then, the subsequent cameras were labelled 'One Step', and a lower-cost SX-70 system was introduced in 1981 with a new film called Type 600 which used the same technology, but had a much faster ISO of 640 so it was better suited to no-fuss point-and-shoot photography. The 600 series cameras were plastic-bodied and introduced a flip-up cover which also served as the on/off switch and, from 1993 and the second-generation line, incorporated a built-in flash. At a rough estimate there were around 30 OneStep 600 flip-type model variants and many more special editions as it became a popular merchandising product for corporations and cartoon characters alike. In fact, there were so many specials, it's become a camera collecting genre in its own right.

FLIP BACK

The subsequent demise of the original Polaroid Corporation in 2001 and then its restructured successor in 2008, followed by a slow but steady revival of the company's famous films and most iconic cameras is another story, but the brand is undoubtedly back with a growing range of instant photography products. So far, the new-era rigid-bodied Polaroid cameras have been largely based on the basic box-type design which was first introduced in 1976 for SX-70 film and exemplified by the best-selling OneStep Model 1000 from 1977. The OneStep 2 revived this design in 2018, and the current Go, Now/Now+ and the higher-end I-2 models also use it, but it was only a matter of time before the once-prolific flip-open configuration re-appeared.

Perhaps not so surprisingly, the new camera is called the Flip and it uses the i-Type instant print film – available in colour or B&W – that was originally introduced with OneStep 2. The i-Type film has the same specifications as the original 600 film so it was just a small step – compared to the many other big developments that have enabled the new Polaroid to get this far – to also re-introduce a 600 pack which incorporates a battery so it can be used in the vintage cameras. You can use the new 600 Film – also available in colour or B&W – in the Flip too, but it doesn't need the battery so it's obviously cheaper to load up i-Type films because, in any shape or form, instant photography today is a fairly pricey exercise. Yet, as has been seen with the huge success of Fujifilm's Instax products in their many forms and formats, it has remained popular in the digital era... and well before conventional photographic film started to stage a comeback.

Like all the current Polaroid instant cameras, the Flip is a mix of the old and the new. Of course, there's the flip-open 'clamshell' cover which incorporates a built-in flash and the styling is similar to what are now characterised as the 'curved corner' 600 series cameras which first appeared in 1993. It's actually closest in looks to the later 'round top' generation four models such as the 637 series from 1997, but with some clearly contemporary elements such

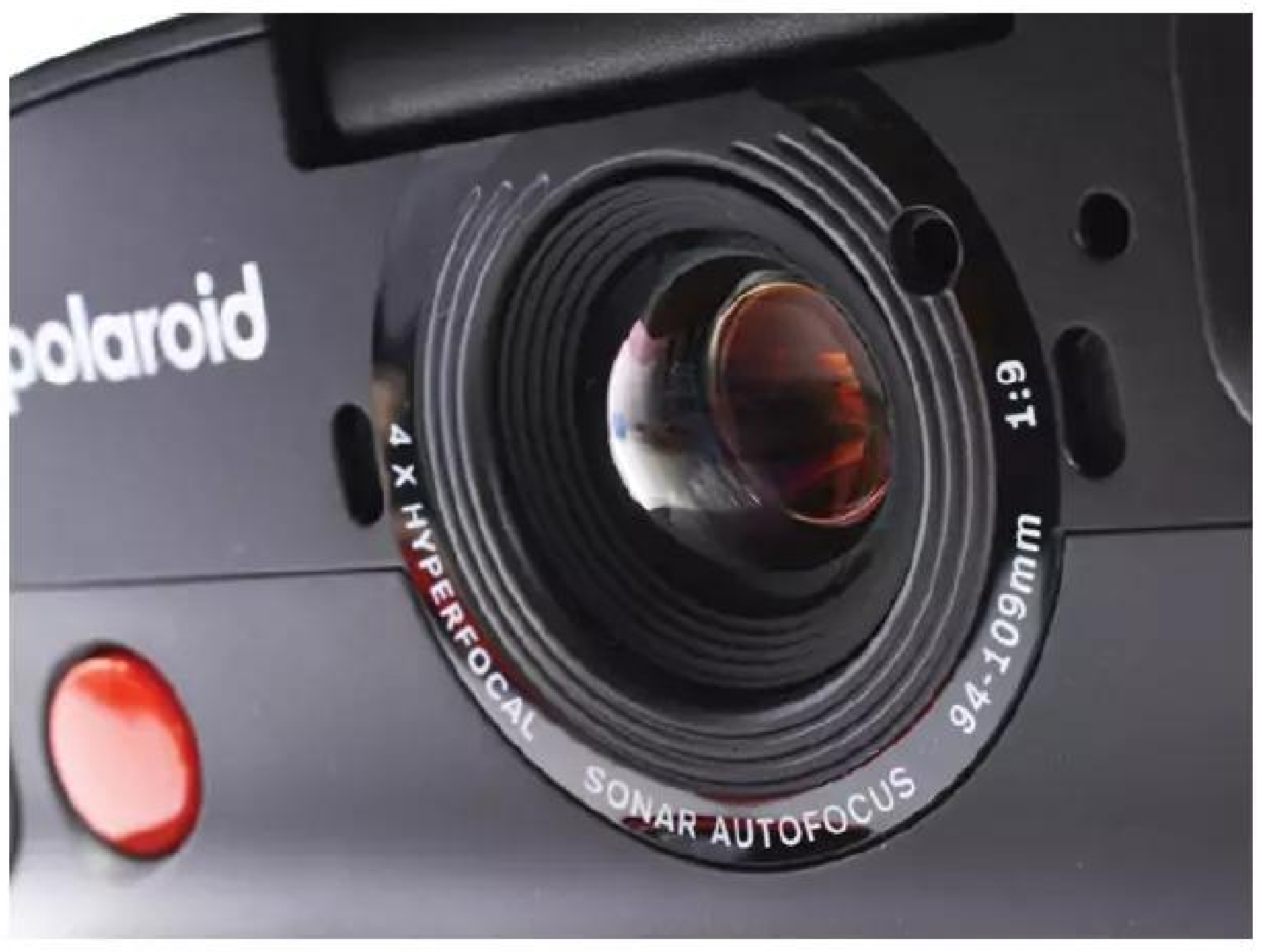


▲ The Polaroid app provides access to some useful additional features, including manual exposure control with an extended range of slower shutter speed settings down to 30 seconds.

as the shape of the flash and a reworking of Polaroid's classic rainbow stripe logo (which was originally officially called the "Polaroid Color Spectrum" and first used in 1968).

IN THE ZONE

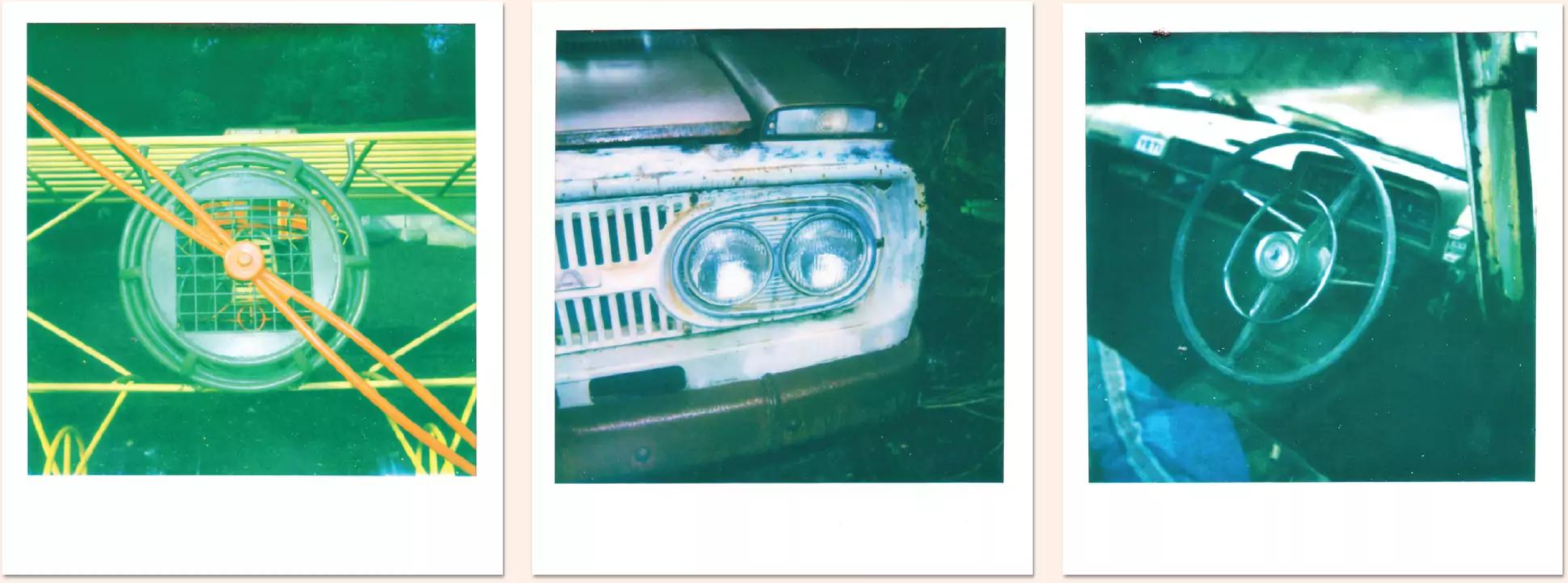
The sharp-eyed among you may have also noted the distinctive circular 'grille' on the front of the camera that was – and still is – the physical manifestation of Polaroid's 'Sonar Autofocus' system first seen on the SX-70 Sonar model in 1978. It subsequently found its way into the flip-cover 600 series via the Sun 660 Autofocus in 1986 and was also used in the later Impulse cameras (which, by the way, were also 600 film models).



▲ The prime focal length varies slightly according to the zone focus element in use, hence the '94-109mm' marking. This is about equivalent to 35-40mm.

▲ LED display shows the status of the camera functions.

▲ Built-in flash is the most powerful yet on a Polaroid camera, with a range of 4.5 metres. Auto exposure control system manages flash output based on ambient light levels.



▲Colour reproduction is best described as "vintage" as the tones across the spectrum are mostly more muted than the reality, especially the reds.

▲Working at reasonably close focusing distances and using the flash is where the Flip delivers the best results. Brightly-coloured subjects also record well.

As it happens, the Flip is using essentially the same AF system as both these cameras in that the ultrasonic measurement determines the subject distance which results in the automatic selection of one of four lenses that are mounted on a rotating disk behind a primary element. On the Sun 660 AF and the Impulse AF, the ultrasonic pulsing sets the subject distance, and the lens is focused by the setting of one of five rear elements, again mounted on a rotating wheel, but behind a doublet primary lens. In all these cameras, old and new, it's essentially a more sophisticated version of zone focusing, and Polaroid devised this system because it was very quick and very quiet… as is the case with the Flip. Depth-of-field, so to speak, 'fills in the gaps' in sharpness which is why the Flip's autofocus is described as a "hyperfocal 4-lens system". The four lenses have focus distances set at 0.65, 0.85, 1.2 and 2.5 metres which, with depth-of-field at work, equate to zones of 0.4-0.77 metres, 0.77-1.03 metres, 1.03-1.68 metres and 1.68 metres to infinity. The lens is marked 94-109mm, but it's actually a prime and so these numbers indicate the small change in the focal length that's related to the different focus zone elements… and this is roughly equivalent to 35-40mm. The four actual focal lengths are 94.17mm, 97.75mm, 101.4mm and 106.99mm. The field-of-view is 40.8 degrees

Polaroid
637
Polaroid
6 3 6
closeup
polaroid

◀The Flip (left) with just two of its numerous flip-cover and flash-equipped 600 series ancestors. The two-tone 637 (2000) is centre and the 636 Close-Up (1996) at right.

vertical and 39.4 degrees horizontal.

IN THE HAND

The Flip feels a bit more substantial than many of its predecessors thanks to its tough polycarbonate bodyshell, but the handling is very similar as is the simple, optical viewfinder although it, too, is better quality than before. A single LED in the eyepiece provides various warnings and is linked to what Polaroid rather grandly calls 'Scene Analysis', but which we suspect is simply the autofocusing and metering signaling when one or other (or both) is out of range. Thus it warns of over- or underexposure and if a subject is too close.

As already noted, lifting the front cover reveals the lens and flash, and activates the camera so, unlike the other current models, there's no power button. As a stand-alone device, the Flip is largely true to its keep-it-simple roots with, beyond the release for film pack compartment, just two other external controls – one a mode button and the other for switching the flash off. Both are modern-era luxuries as the older flash-equipped Polaroid cameras didn't have the 'off' option and the flash fired whenever it was deemed necessary primarily to avoid the disappointment of underexposed prints. Opening the camera automatically switches the flash on, but then you can choose to turn it off. The mode button is linked to another contemporary feature – a LED display which has indicators for the flash, the battery power level, a self-timer, a double exposure facility and exposure compensation. You select these options via various different pressing actions on the mode button – i.e. once, twice, short or longer – and there's a permanently displayed counter for the number shots remaining in the loaded pack.

Polaroid says the Flip's flash is the most powerful ever fitted to one of its instant cameras, either old or new, and its range extends up to a useful 4.5 metres. With or without flash, exposure control is fully automatic with the apertures ranging from f/8.5 to f/66.6 and the shutter speeds from one second to 1/200 second. Yes, there's a tripod mount if you want to shoot in low light situations and utilise the slower speeds. The exposure compensation range is only +/-0.5 EV, but it will make a bit of a difference, and while pressing a button is more contemporary it's not really any faster than using the classic slider control that was on most vintage 600 series cameras. This is especially true as the camera won't hold your setting when it's switched off which means you have to go the procedure of long-short button presses all over again.

At this point, you can simply use the Flip as has been described so far, but wait there's more. This being 2025, there's an app – of course, there is – and this unlocks some extended capabilities, most notably fully manual exposure control with an extended range of slower shutter speeds down to 30 seconds and a 'B' timer for even longer exposures. This range is also available with a programmed exposure control mode or a full auto option which brings the flash into play. The Polaroid App also gives you manual control over the focus zone settings – handy if you want to play around with selective focusing or out-of-focus effects – and you can set up the double exposure, compensation and self-timer features remotely which makes life a lot easier if you're combining any or all of them. On the camera, this would be a potentially confusing sequence of many button pushes.

> AS A STAND-ALONE DEVICE, THE FLIP IS LARGELY TRUE TO ITS KEEP-IT-SIMPLE ROOTS WITH, BEYOND THE RELEASE FOR FILM PACK COMPARTMENT, JUST TWO OTHER EXTERNAL CONTROLS."

Connection is via Bluetooth and virtually instantaneous after you select the camera model… the app does the connecting so there's no need to go through the procedure of pairing devices. After that, everything is on your device's screen, including the shutter release button, the prints-remaining counter and the battery power indicator. In the Program and Manual exposure modes, the aperture and shutter speed settings are also displayed with swipe actions for making adjustments in the latter.

The app also includes a scanning function and a photo album for subsequently organising the image files, plus there are galleries, themed photo comps and tutorials. It's all very well organised, logical to navigate and, while not loaded down with extra camera features, still a useful supplement.

▶Compatible with i-Type films (and also the new 600 series products, but you're paying for a battery you won't use), the Polaroid Flip retains the classical flip-cover styling of many a vintage Polaroid camera.

PERFORMANCE

Much has been written about the variable performance of the first films to come out of what was then aptly called 'The Impossible Project', set up in 2008 at the recently-closed Enschede factory in the Netherlands. With all the original recipes locked up under copyright, the re-invention of the 'one step' self-developing colour films had to be started from scratch… and it's worth remembering that it took close to two decades to perfect previously. Now that we essentially have Polaroid Corp. Version 2.0 (well, actually Polaroid B.V. as it's now a Dutch company) – via the interim phase of Polaroid Originals – the film formulations have been much improved, culminating in the i-Type products which are continually being refined. However, some idiosyncrasies remain such as the film shield arrangement. It's a flexible protective cover which unfurls from the camera along with the print in order to prevent the latter's surface being instantly dosed with available light… especially important in bright sunny

▼Sonar – i.e. ultrasonic – autofocusing drives a set of four focus zone lenses rather than directly adjusting just a single lens.

polaroid
SONAR AUTOFOCUS

> THIS BEING 2025, THERE'S AN APP – OF COURSE, THERE IS – AND THIS UNLOCKS SOME EXTENDED CAPABILITIES, MOST NOTABLY MANUAL EXPOSURE CONTROL."

conditions. The shield is actually part of the camera so resist tugging on it when retrieving the print.

The print is meant to remain under this shield for at least five seconds and then placed face-down (i.e. still away from direct light) for development to be completed. And, no, you can't shake an i-Type print into developing more quickly; this action will probably only damage it. The film's packaging says that the developing time is "10 – 15 minutes" which is much better than with the old Impossible Project film (when it was half an hour or even longer), but is still slower than Fujifilm's Instax Square film which is done and dusted in less than five minutes. Fujifilm actually claims 90 seconds, but in practice it takes a bit longer for full colour and contrast to be achieved. As with the original Polaroid films, the 'cooking' continues for quite a while so an image will further improve over the next couple of hours or even longer.

Of course, you still get the classic Polaroid instant print format which is sized at 8.8x10.7 centimetres with a square image area of 7.9x7.9 centimetres, offset towards the top… which is actually the product of the developer pod's location, but now an identifying feature. If the company itself talks about the "beautifully imperfect world of *Polaroid photography*", it probably gives you an inkling of what to expect is being ejected from the Flip. Most notably the colours are muted which you could probably call "vintage", but in reality can be a bit on the dull side. This isn't helped by a tendency for the camera to underexpose and the plus-one-third-stop compensation doesn't really help all that much. Here, it has to be said, Fujifilm Instax films are markedly superior. Essentially then, the Flip works best in bright conditions – and with bright colours – or when using the flash. Without flash, the exposure system struggles with high contrast scenes and, not surprisingly, the lens flares quite dramatically with bright light sources. Consequently, parties or any social gathering where you're shooting at reasonably close quarters are where the Flip does its best work… which was pretty much always the case with classic Polaroid 600 series cameras.

THE VERDICT

There's no doubt that the fun factor is a big part of the instant camera's ongoing appeal and this is largely related to having a physical print to hand around, shortly after the shot was taken. You have to wait a bit longer with i-Type film than was the case in the past, but there's still the excitement of watching the image slowly emerge.

▲Bodyshell construction is a combination of polycarbonate and ABS plastics. Flip-up covers serves as the on/off switch.

With its distinctive vintage Polaroid camera looks, but more modern features such as a more powerful flash and remote operation via an app – great for taking group shots – the Flip adds to the fun and is fun to use too. There's no escaping the fact that instant photography is pricey fun – and Polaroid films are pricier than Instax – but it's the immediacy that makes it worth the money. And the rich Polaroid heritage – very much embodied in the Flip – makes buying into the brand today more much than just buying a camera. Polaroid is, once again, both cool and hot.

VITAL STATISTICS

POLAROID FLIP $399

Type: Fixed lens instant camera delivering self-developing colour prints using Polaroid i-Type and 600 instant print film.

Lens: Four lens hyperfocal system with zones set at 0.4-0.77 metres, 0.77-1.03 metres, 1.03-1.68 metres and 1.68-infinity (actual focus distance settings are 0.65, 0.85, 1.2 and 2.5 metres with depth-of-field covering each zone's quoted ranges). Focal lengths equivalent to 94-109mm. Aperture range is f/8.5 to f/66.6. Angle-of-view is 39.4 degrees horizontal and 40.8 degrees vertical.

Focusing: Active sonar-type autofocusing with auto lens switching according to the subject distance.

Focusing Range: 40 cm to infinity.

Shutter Speeds: 1-1/200 second. 30-1/200 second plus 'B' via the Polaroid app.

Exposure Control: Auto, program and manual modes. +/-0.5 EV exposure compensation.

Sensitivity: ISO 640.

Continuous Shooting: Single shot only.

Print Format: Polaroid i-Type or Type 600. Print size = 107x88 mm. Image size = 79x79 mm.

Flash: Built-in with automatic output control based on subject distance and ambient light levels. Range is 40 centimetres to 4.5 metres.

Viewfinder: Tunnel-type optical with under/overexposure and subject too close warning LED in eyepiece.

Features: Mode button for double exposure facility, self-timer (3-, 6-, 9- or 12-second delay) and exposure compensation; info display (flash, self-timer, double exposure mode, exposure compensation, print count and battery level), tripod mounting socket, auto power off (two minutes). Bluetooth wireless connectivity (for the Polaroid Mobile app).

Power: Rechargeable 750 mAh lithium-ion battery pack with in-camera recharging via USB C.

Dimensions (WxHxD): 117.2x121.6x163.5 mm (open).

Weight: 648 grams (without film pack).

Price: $399. Available in black/grey or white/orange colour schemes. Polaroid I-Type Colour Film (8 prints) $29.95 (digiDirect), Polaroid I-Type B&W Film (8 Prints) $31.95 (Georges Cameras), Polaroid 600 Colour Film (8 prints) $39.95 (Camera House), Polaroid I-Type Colour Instant Film 5 Pack (40 prints) $119.95 (Camera House).

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REPORT BY **PAUL BURROWS**

LEICA
SL3-S

LEICA
Leica
LEICA
4812072
E67
APO-SUMMICRON-SL 1:2/35 ASPH.

▲Size and styling are unchanged from the 60 megapixels SL3, but the 'S' model uses a faster 24 MP sensor which enables continuous shooting at up to 30 fps.

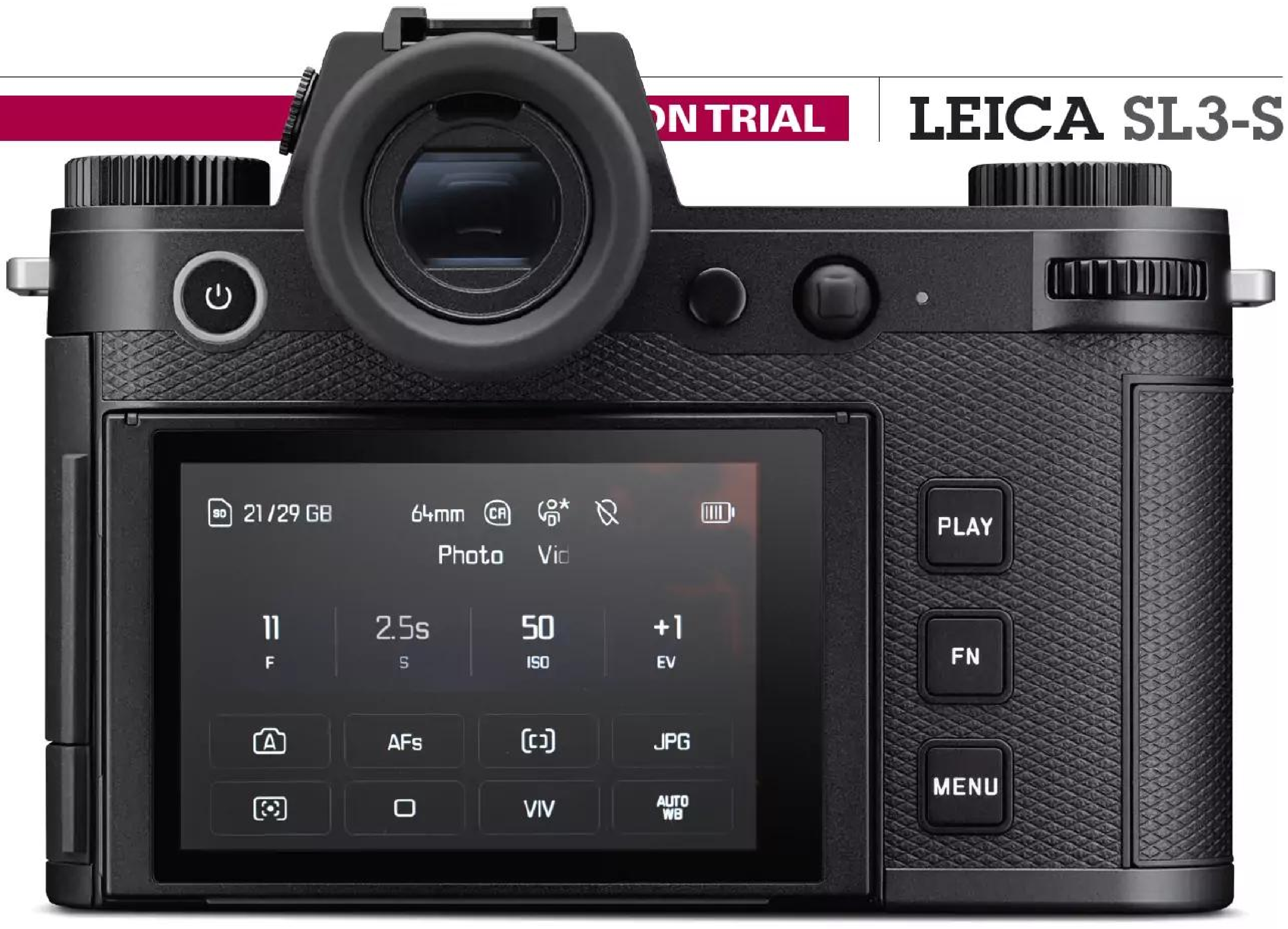
HIGHER RETURNS ON INVESTMENT

The SL3's sportier sibling trades resolution for speed, but this arguably makes it the more versatile camera and it's a whole lot more affordable too.

Let's talk money. It's the inevitable discussion with Leica cameras, highlighted by a market in which there are only a couple of prestige brands and where the other, Hasselblad, doesn't seem to attract quite so many raised eyebrows when prices are mentioned… maybe being a bigger format has something to do with it. And where Leica's offerings are unique – namely the M mount rangefinder cameras and, to some extent, the Q series fixed-lens models – you're buying into something more in terms of the heritage, exclusivity and desirability.

However, it's a very different matter with the SL series mirrorless cameras because they're competing in a very crowded sector which consequently resets the definitions of investment and return. Nobody really complains about Ferraris being expensive – except in the context of not being able to afford one, even a classic – but it's obviously a lot clearer about exactly what you're getting for your money, especially in terms of performance… and the supercar competition from the likes of Lamborghini, McLaren or Porsche is similarly priced (or costs a whole lot more in the case of niche brands like Pagani and Koenigsegg). The Leica SL3-S boils down to being a 24 megapixels full frame mirrorless camera which means that its direct rivals include Canon's high-powered EOS R3, Nikon's Z6III and Zf, Panasonic's Lumix S5II duo and the S1H (also, of course, L mount bodies) and Sony's A9 III. Both the Canon and Sony are similarly priced, but much higher-specced while the Panasonics – essentially cousins to the SL series Leicas in technological terms – all look like better value. So the obvious question here is why choose the Leica ahead of anything else? There's more to it than the on-paper comparisons because with a Leica you're buying into something more other than just a camera and the aspects of history and kudos apply equally to the SL cameras as any of the other lines, but there's also the engineering precision and the physical quality which contribute to a different user experience… one where the journey, metaphorically speaking, is considered as important as the destination. In other words, it's as much about the camera itself as the processes and that delivers its own particular satisfactions. With each successive generation of SL series cameras, Leica has conceded more to the mainstream which has made adapting to its way of thinking more accessible, but without unduly diminishing the unique characteristics of both the design and functionality that help them stand out from the 'me too' pack. The latest SL3 models balance individuality and conformity particularly effectively, while the SL3-S has a lower resolution – but faster – sensor to give it a different set of attributes to its 60 MP sibling. Both share the same bodyshell, control layout and user interface so they have much the same handling characteristics and operational procedures, but the 'S' model's emphasis is on faster shooting for stills and a wider choice of recording options for video.

> LEICA'S LATEST SL3 GENERATION MODELS BALANCE INDIVIDUALITY AND CONFORMITY PARTICULARLY EFFECTIVELY."



▲ Rear panel control layout keeps things very simple indeed.

The 24.6 megapixels full frame sensor has BSI architecture and phase-detection AF pixels (and is likely related to the imagers used in the Lumix S5II models), along with dual-gain output circuitry. The native sensitivity range is equivalent to ISO 50 to 200,000 with the two base ISOs set at 50 and 560 for stills and 400 and 2500 when shooting video in the flatter L-Log profile (see the Making Movies panel for the rest of the SL3-S's video story). The sensor's two outputs are optimised for dynamic range – in this case below ISO 560 – and higher gain (or sensitivity) above. This means that there is less noise at those higher ISO settings than would otherwise be the case and, with a pixel size of 5.93 microns, the SL3-S's sensor is already starting out with a higher signal-to-noise ratio than anything with a much higher resolution. It's matched with Leica's latest 'Maestro IV' processor which enables 30 fps shooting with both JPEGs and RAW files, the latter with 12-bit colour. An 8.0 GB buffer memory enables longer burst lengths – up to 175 JPEGs or RAW files at the top speed of 30 fps (which is obviously achieved with the camera's sensor shutter). Burst lengths then extend considerably if you opt for a slower shooting speed – for example, up to 1000 JPEGs and a little under 700 RAWs at 7.0 fps. However, at any speed, focus, exposure and white balance are adjusted frame-by-frame. Additionally, at speeds of 5.0 fps or slower, RAW capture is with 14-bit colour and, as always with a Leica digital camera, in the Adobe DNG format. There's the option of shooting at a slower – but still pretty rapid – 15 fps rate with the sensor shutter although the burst lengths stay the same. The focal plane shutter can deliver a maximum of 7.0 fps with the choice of either 5.0 or 2.0 fps lower speed settings.

Both JPEGs and RAW files are captured at one size – 6000x4000 pixels – with one compression level for the JPEGs and lossless compression for the RAWs. There is, however, also a cropped 'APS-C' size – at 3936x2624 pixels – for both JPEG and RAW capture should you still happen to own some TL lenses from the now-discontinued T series. There is also a choice of six aspect ratios – 3:2, 7:5, 4:3, 1:1, 3:1 and 16:9 – the latter five being crops. There is still no 10-bit HEIF capture option for stills, but you can do HDR videos.

In-body image stabilisation is performed via sensor shifting with five-axis movements giving up to 5.0 stops of correction for

▲ Unpainted Leica nameplate is the only visual differentiation between the two SL3 generation models.

▲ Customisation options include a pair of buttons on the front panel.

▲ Battery incorporates its compartment cover and has a spring-locking arrangement for ejecting.

▲Monochrome LCD read-out panel switches between photo, video and cine info displays.

camera shake. A high-res Multi-Shot capture function makes a return on the SL3-S – it's mysteriously omitted on the SL3, but could be had on both the SL2 and SL2-S – and with expanded capabilities in that it's available for either JPEGs or RAWs (or both), and also has both hand-held and tripod modes. It captures eight frames – with half-pixel shifts for each – to increase the resolution and also the colour accuracy (as full RGGB colour is recorded at every pixel point, eliminating the usual interpolation). This delivers 96 megapixels with full frame capture and

48 megapixels with the 'APS-C' crop. Merging is performed in-camera which makes this feature a whole lot more convenient than when it has to be done post-camera.

TAKE A LOOK

While Leica is still adopting its pared-down, Das Wesentliche (the essentials), approach for its SL cameras, there's more than before, particularly for JPEG shooters. For starters, there's a choice of five built-in 'Film Style' presets – which Leica is now calling 'Core Looks' – and these are labelled Standard, Vivid, Natural, Monochrome and Monochrome High Contrast. The three colour modes have adjustable parameters for contrast, sharpness and saturation plus highlights and shadows; while the two B&W modes obviously go without the colour saturation option.

However, the recipes for flavouring JPEGs can be expanded via a growing collection of 'Leica Looks' presets which are downloaded via the Leica FOTOS app. These are designed to work a bit like Fujifilm's 'Film Simulation' profiles or, indeed, cinematic LUTs and are labelled 'Essential Looks'. The list currently comprises Brass (the most recent addition), Chrome, Eternal, Contemporary or Classic for tweaking colour saturation and contrast; and Selenium, Sepia and Blue for toning B&W images. It's now possible to combine Looks and also vary the strength of a particular effect while the ability to create and share user-created profiles – similar to Panasonic and Nikon – is apparently in the pipeline. At the moment, the SL3-S has provision for adding six downloaded 'Essential Looks', but you'd have to think this might increase in the future. Creating individual and distinctive looks is the next creative frontier in mirrorless cameras for both stills and video.

It's not quite just the bare essentials with the SL3-S because you do also get an intervalometer (programmable for up to 9999 frames), the 'Intelligent Dynamic Range' adjustment (iDR for short) that was introduced with the original Q3, and the handy 'Perspective Control' correction for JPEGs. The iDR processing is designed to expand the dynamic range – particularly in the shadow areas – and can be set to Auto or to one of the three manual settings; Low, Standard or High. The 'Perspective Control' correction is performed in-camera and you're guided by a frame in live view which adjusts in real time to show you exactly how the image will be cropped as it's processed.

Additionally, the SL3-S becomes the second Leica camera to have the 'Content Credentials' technology right from the start, following the M11-P. This is a means of authenticating an image – via a digital signature applied by the camera when it's captured – which is embedded in the file to not only identify its copyright, but to alert when unauthorised usage occurs. The ownership and copyright details can't be tampered with and, any subsequent editing is recorded so, for example, a photojournalist is able to prove conclusively that an image is exactly as it was taken by the camera and has not been changed or manipulated to suit a narrative. The 'Content Credentials' standard was created by the Coalition For Content Provenance And Authenticity (C2PA) primarily to counter the rise in image misappropriation by AI generative art programs and it's been adopted by LinkedIn, YouTube, Adobe, and Microsoft as well as many media organisations, photo libraries and, of course, other camera companies including Canon, Fujifilm, Nikon and Panasonic.

MOVING TARGETS

Not surprisingly, the SL3-S has the same hybrid phase- and contrast detection auto-focusing system as the SL3 and which has 779 PDAF points and 315 CDAF. Contrast detection AF is performed via the Depth-From-Defocus (DFD) procedure which Leica shares with Panasonic and is actually pretty fast, but certainly not as zippy as PDAF hence the transition by both brands to hybrid systems. Subject recognition is provided for humans and animals (which includes birds), but that's it which is a bit tame compared to what's on offer elsewhere, including over at Panasonic. The subject modes have detection for eyes, faces or bodies, switching as necessary in order to maintain tracking. However, as with the SL3, the subject detection for animals is still labelled 'beta'

▲ Joystick-type controller performs AF point/zone selection and various navigational duties.

▲ Computer-style power on/off button incorporates coloured LEDs (white, red or green) which serve as status indicators.

▲ The SL3-S's controls can be extensively customised, including all the buttons.

AS WITH ITS 60 MP SIBLING, THE SL3-S IS BUILT TOUGH – AND YOU CAN FEEL IT IN THE BODY'S SUBSTANTIAL HEFT EVEN BEFORE A LENS IS FITTED."

in our test sample (which was running Firmware Version 2.11) so this would suggest that there's some performance upgrades in the pipeline.

Not based on specific subject recognition, but tuned to deal with certain movement characteristics is a selection of 'AF Profiles' for Children/Pets, Team Sports, Runner and Wildlife. Each has adjustable parameters for Depth Sensitivity, Field Movement and Shift In Direction (all with a range of settings between Fix and Responsive). You can also register the 'AF Tracking Start Position' to Centre, Recall or Last.

There's a choice of five AF area modes which progress in size from Spot, through Field and Zone to Multi-Field and Tracking (for subjects other than humans and animals). Touchpad AF point/zone selection is available via the camera's touch screen monitor. There's the option of automatic switching between the single-shot and continuous AF operation (which Leica calls 'Intelligent AF'). Manual focusing is assisted by a magnified image or a focus peaking display which is available in a choice of four colours – red, green, blue or white – each with three levels of intensity.

As with Panasonic's Lumix S cameras and lenses, the operation of the latter's manual focusing collar can be switched between linear or non-linear. With non-linear adjustment, the amount of focus shift is governed by the rotation speed of the focus collar… in other words, if you turn it quickly, you'll make big adjustments, but turning it slowly allows for more precise control thanks to smaller degrees of adjustment. With the linear setting, the focus is shifted at a constant speed according to the rotational angle of the focus ring. In this mode, the sensitivity (i.e. the amount of focus shift per the rotational angle of the focusing collar) can be varied from 90 to 360 degrees in 30-degree increments or set to 'Maximum'. The linear manual focusing allows for more uniformity of adjustment which is something video-makers often require when using focusing creatively.

The SL3-S's exposure control system uses sensor-based metering with a choice multi-zone, centre-weighted average, highlight-weighted average or spot

MAKING MOVIES

Of course, Leica has technical partner Panasonic breathing down its neck when it comes to the video capabilities of the SL mirrorless bodies and, since it's all in the L mount family, it's not hard to think that you'd probably buy a Lumix S5IIX for video shooting and the money you've saved could be spent on a Leica SL system lens. That said, the SL3-S is the most capable SL model yet when it comes to video, and certainly does enough to qualify as a hybrid mirrorless camera.

The faster sensor and latest-generation processor deliver 4K DCI/UHD at up to 60 fps and Full HD at 100/120 fps, although it should be pointed out that any frame rate faster than 30 fps comes with a 1.5x crop. However, there's 6K 'open gate' 3:2 aspect recording – i.e. using the whole sensor area – with 10-bit 4:2:0 colour and using the H.265 codec for efficiency. This provides plenty of flexibility with 4K and 2K framing for different applications including the 9:16 vertical aspect ratio for mobile devices. For post-production efficiency, ProRes 422HQ recording internally is possible in 6K DCI (at 5952x3136 pixels) and 24/25/30 fps; and 4K DCI and Full HD at up to 50/60 fps. With the HQ quality and 10-bit 4:2:2 colour, the bit rates get to a very healthy 1944 Mbps which needs the CFexpress Type B memory card and, of course, generates pretty big files. You can also have 10-bit 4:2:2 colour with the H.264 codec for 6K DCI/UHD at up to 50/60 fps and Full HD at up to 100/120 fps, but with the aforementioned 1.5x cutting in at above 30 fps. A 12-bit RAW output is available for external recording via HDMI at 5.9K (5888x3312 pixels) up to 25/30 fps, 4K DCI up to 50/60 fps and 3.5K (3536x2656 pixels) at 50, 30, 25 or 24 fps with the 4:3 aspect ratio.

The HDMI connector is the full-size, Type A port, and the SL3-S has both stereo audio in/out plus a time-code sync socket. The built-in stereo microphones have a gain adjustment and a wind-cut filter plus there's the option of manual levels control.

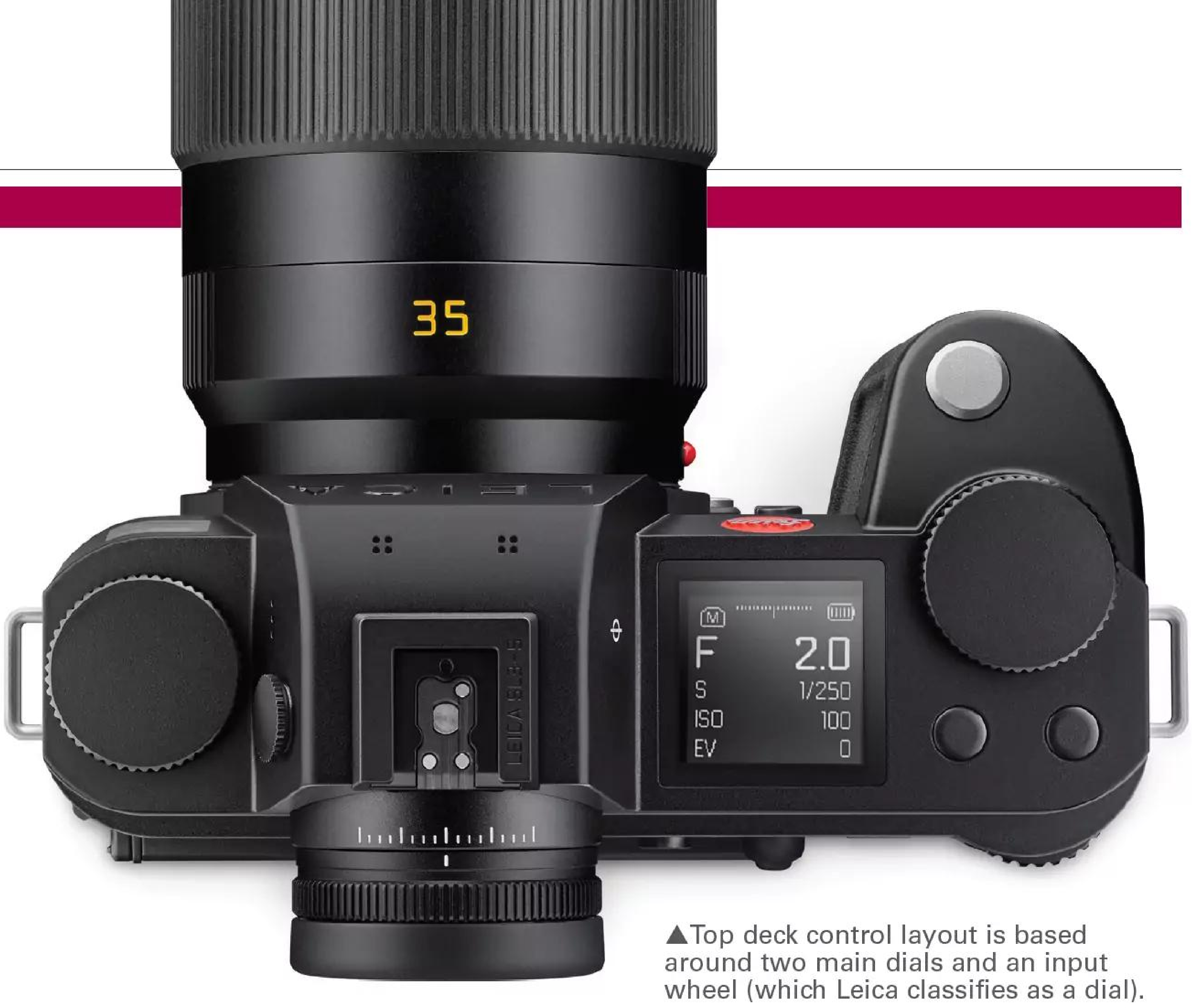
You can create up to four 'Video Profiles' which comprise the format, resolution, frame rate, compression codec, colour subsampling and more. If you try to use a combination that's not possible, the camera resets everything automatically and indicates these changes with a yellow dot on each of the adjusted tiles. This is OK, but as we noted with the SL3, it would make more sense just to lock out the unavailable settings in the first place.

The video features include a choice of LUT profiles for use with L-Log recording ('Natural' and 'Classic' built-in, three memory slots for downloadable Leica LUTs used internally, the slots for external recording). Otherwise, there's the choice of built-in 'Film Style' profiles – renamed 'Video Styles' here – and the provision for downloading the extra 'Essential Looks', again with six slots (so you could have a different set for video recording). The camera also has time code support (either rec run or free run), a zebra pattern with an adjustable clipping level, a waveform monitor, colour bars, recording indicator frame, the focus peaking displays, the 3x3 or 6x4 guide grids and the dual-axis level indicator. There's a choice of video-specific aspect ratios – 1.33:1 (a.k.a. 4:3), 1.66:1, 1.78:1 (16:9), 1.85:1, 2.35:1 and 2.40:1. The 'iDR' dynamic range expansion processing is also available for video. There's a dedicated info/status display for video recording which can be additionally modified to Cine-oriented settings so ISO becomes ASA, the shutter speed is marked in degrees (as it would be with a rotary disk shutter) and f-stops are replaced by T-stops.

As with still photography, the hybrid autofocusing delivers improvements to the continuous AF operation and to subject tracking. The specific subject detection features are available for video recording, but not the 'AF Profile' set-ups. However, adjustments are provided for AF sensitivity (over plus/minus three steps from Fix to Responsive) and speed (over plus/minus ten steps from Smooth to Fast) and for setting the tracking start position (Last, Recall or Centre). There's also a customisable follow focus function.

The video IQ again exhibits the classic Leica visual characteristics in terms of the colour rendition and the tonality, along with excellent detailing and a wide dynamic range. Needless to note the 6K clips look really great, but the 4K performance will matter more to most users and it's exceptional in terms of both colour and contrast which results in superb definition and beautifully smooth gradations,

Does the SL3-S do enough to be picked ahead of its Panasonic cousin? If you're primarily a video shooter then the answer really has to be no, but if you want high-end video capabilities as an adjunct to your photography, then it's definitely in with a shot.



▲Top deck control layout is based around two main dials and an input wheel (which Leica classifies as a dial).

metering measurements. These drive the standard choice of 'PASM' control modes, with the auto overrides being exposure compensation (up to +/-3.0 EV) and auto bracketing over a sequence of either three or five frames (with the same exposure variation range). As with the previous generation bodies, an external metering sensor is located on the front panel and generates the exposure metadata for the EXIF info when an M mount lens is fitted via an adapter… which is obviously otherwise a fully mechanical coupling. As before too, the sensor's microlens array is optimised at the peripheries to handle the very oblique angles of the light rays exiting the rangefinder system lenses.

The focal plane shutter has a speed range of 30 minutes to 1/8000 second plus 'B', with flash sync up to 1/200 second. The bulb setting has a maximum duration of 30 minutes too. The sensor shutter runs from 60-1/16,000 second and there's the option of a 'hybrid' setting which will automatically switch between the two when speeds beyond either's range are selected (i.e. higher than 1/8000 second in the case of the FP shutter). The sensor's output speed isn't fast enough to allow flash with this shutter, but its silent (and vibration-free) operation is obviously useful in some situations… the only noise is the lens diaphragm opening and closing and it's very faint.

The white balance control options comprise automatic correction, a selection of eight lighting presets, and manual colour temperature setting over a range of 2000 to 11,500 degrees Kelvin. There are two options for making a custom white balance measurement – one is called 'Grey Card' and takes a measurement from a scene's central zone, and the alternative method is 'Grey Card Pipette' which allows you to move the measuring point around.

IN THE HAND

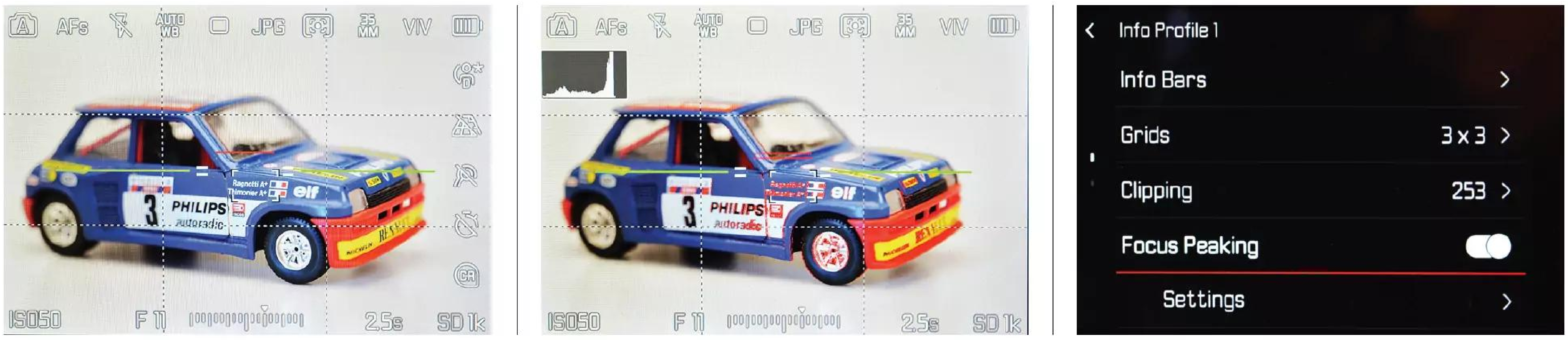
While you wouldn't call any of Leica's SL series mirrorless cameras pretty, there is a certain appeal to their no-nonsense rugged looks and, for some reason, the blacked-out 'Leica' badging on the 'S' models looks über cool (similarly Panasonic's Lumix S5IIX). Even though there's been a progressive slimming down since the original SL, the SL3 generation still have a commanding presence and are very different in both their styling and design to anything else on the market. All the key differences between the SL3 and the SL3-S are on the inside so on the outside there's little to tell them apart except for the unpainted nameplate. Of course, the famous 'red dot' Leica logo is still very prominent on the front panel, so the SL3-S isn't really about stealth like an M11 Monochrom, but more just a point of differentiation and it does seem to add an extra touch of desirability.

Like the last of Leica's 35mm SLRs – the quite daringly-styled but fairly chunky R8 and the R9 – the SL mirrorless cameras really do grow on you over time, and there's no doubt that the multi-dial control layout introduced with the SL3 and carried over to the SL3-S contributes an improved user experience… not to mention enhanced operational efficiency. As with its sibling, the SL3-S is built tough – and you can feel it in the body's substantial heft even before a lens is fitted – with aluminium top and bottom covers over a magnesium alloy chassis. The sealing against dust and moisture is to the exacting IP54 standard, and the body is also insulated to allow for operation in subzero temperatures down to -10 degrees Celsius. It's also worth noting here that the top and bottom covers are machined rather than pressed components and that Leica was making metal body parts this way well before Sigma got in on the act. While the handgrip lacks any ergonomic shaping, it proves to be quite comfortable to hold and despite having a pretty beefy chunk of metal and glass to wield – nudging two kilos with the 24-90mm f/4.0 zoom that came with our test camera – the manoeuvrability is still good. It's not effortless by any stretch of the imagination, but nor is it as taxing as you might imagine given the loads at play.

The two main dials are also milled from solid bits of metal alloy and all the key exposure adjustments – i.e. apertures, shutter speeds and sensitivity – are set with these controls along with the input thumb wheel (which Leica also classifies as a dial). The other main feature of the top panel is a large 128x128 pixels monochrome LCD read-out panel. Additionally, there's a pair of unmarked buttons which are user-assignable for their functions as are another two on the front of the camera and one at the rear. The rear control layout also follows the keep-it-simple philosophy and comprises toggle-type controller with just three keys. These for playback, menu selection and a sixth multi-functional button with is marked 'FN', but incidentally, this trio are the only controls that are labelled. A total of 67 operations – namely just about everything that can be set on SL3-S – are available for assigning to the multi-function controls. Additionally, it's also possible personalise the operations of the dials and the toggle switch to suit personal preferences. You can create up to six camera set-ups – which Leica terms "User Profiles" – which then appear as 'Favourites' submenu pages. Naturally, the SL3-S has the much-revised user interface introduced with the SL3 which comprises a 'quick menu' arrangement – dedicated displays for photo and video – and a main menu which is navigated via one long continuous scroll.

The quick menu's touch tiles are divided into two groups… one for the four exposure settings (i.e. including compensation), and the other for the key capture settings such as the focus mode, metering patterns, drive modes, white balance, and the file format and size. This is the same basic layout for both photo and video, but the

> CALL IT A MYSTIQUE, AN AURA OR A PRESENCE, BUT IT IS WHAT MAKES A LEICA A LEICA… AND IT'S WHAT YOU'RE BUYING WHEN YOU PICK LEICA OVER ANY OF ITS JAPANESE RIVALS."



Info Profile 1

Info Bars >

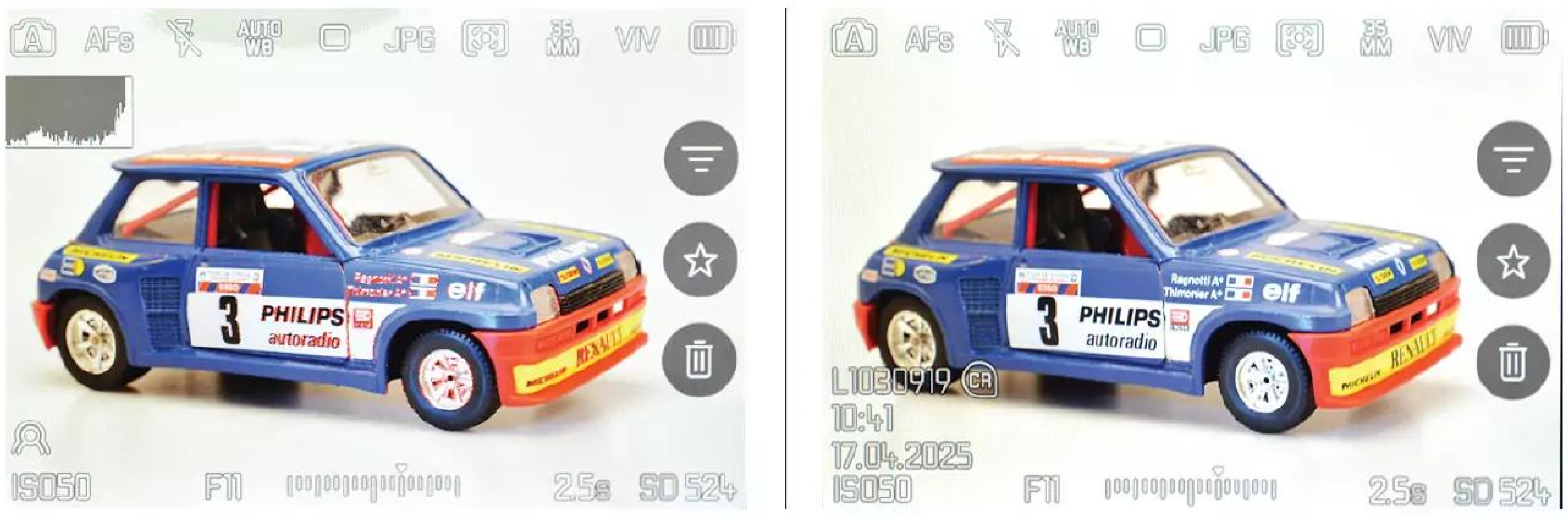
Grids 3 x 3 >

Clipping 253 >

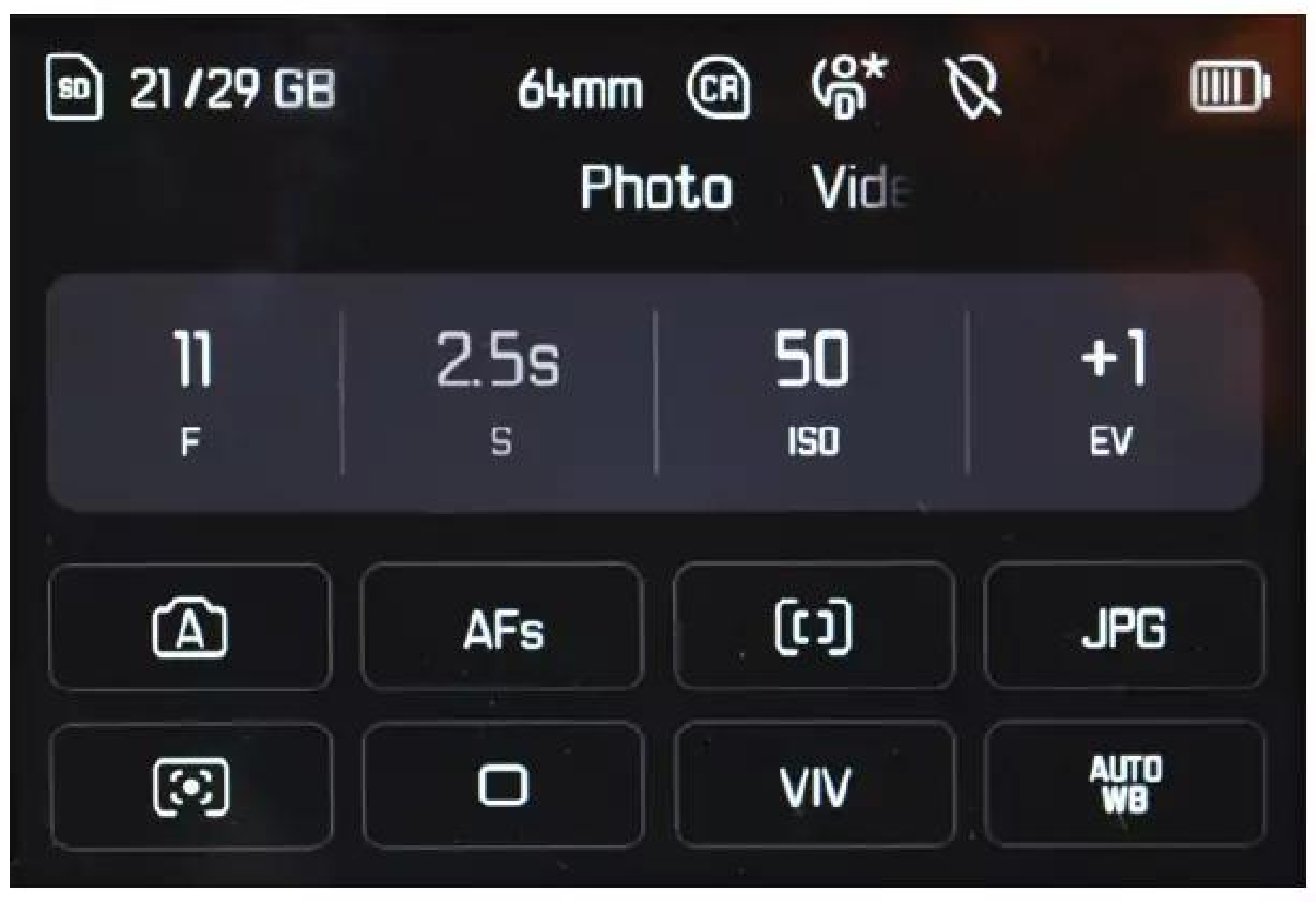
Focus Peaking

Settings >

▲ Live view screen is customizable with elements which include a guide grid, real-time histogram, a highlight warning and info bars. You can have them all in one display or separately configure up to four 'Info Profiles'.



▲ Replay/review screens include a real-time histogram, a focus peaking display (shown in red in the left-hand illustration), a highlight warning and basic capture data.

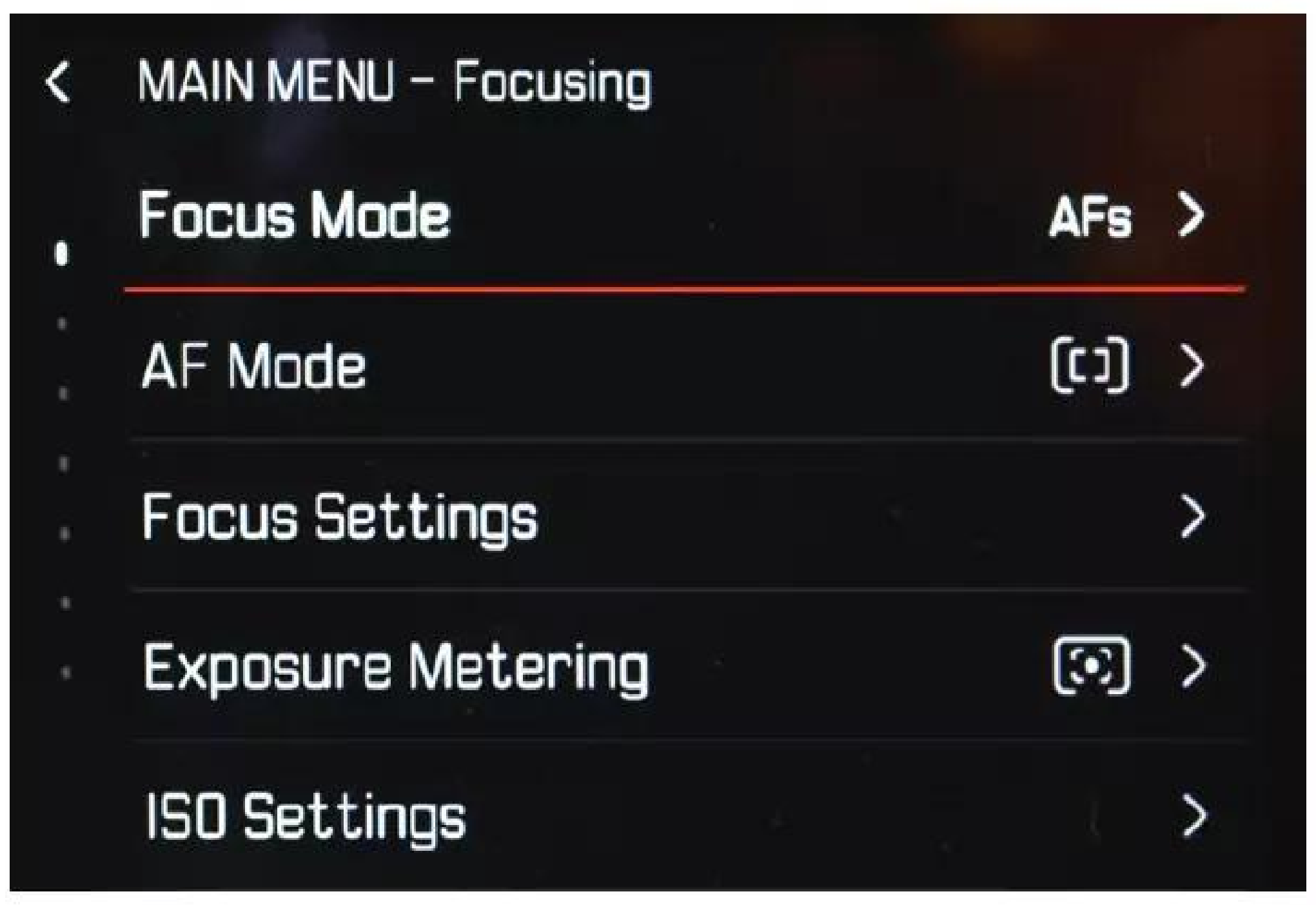


21/29 GB 64mm

Photo Vid

11	2.5s	50	+1
F	S	ISO	EV

▲ Main info display has touch tiles for changing settings and selecting functions for adjustment.



MAIN MENU – Focusing

Focus Mode AFs >

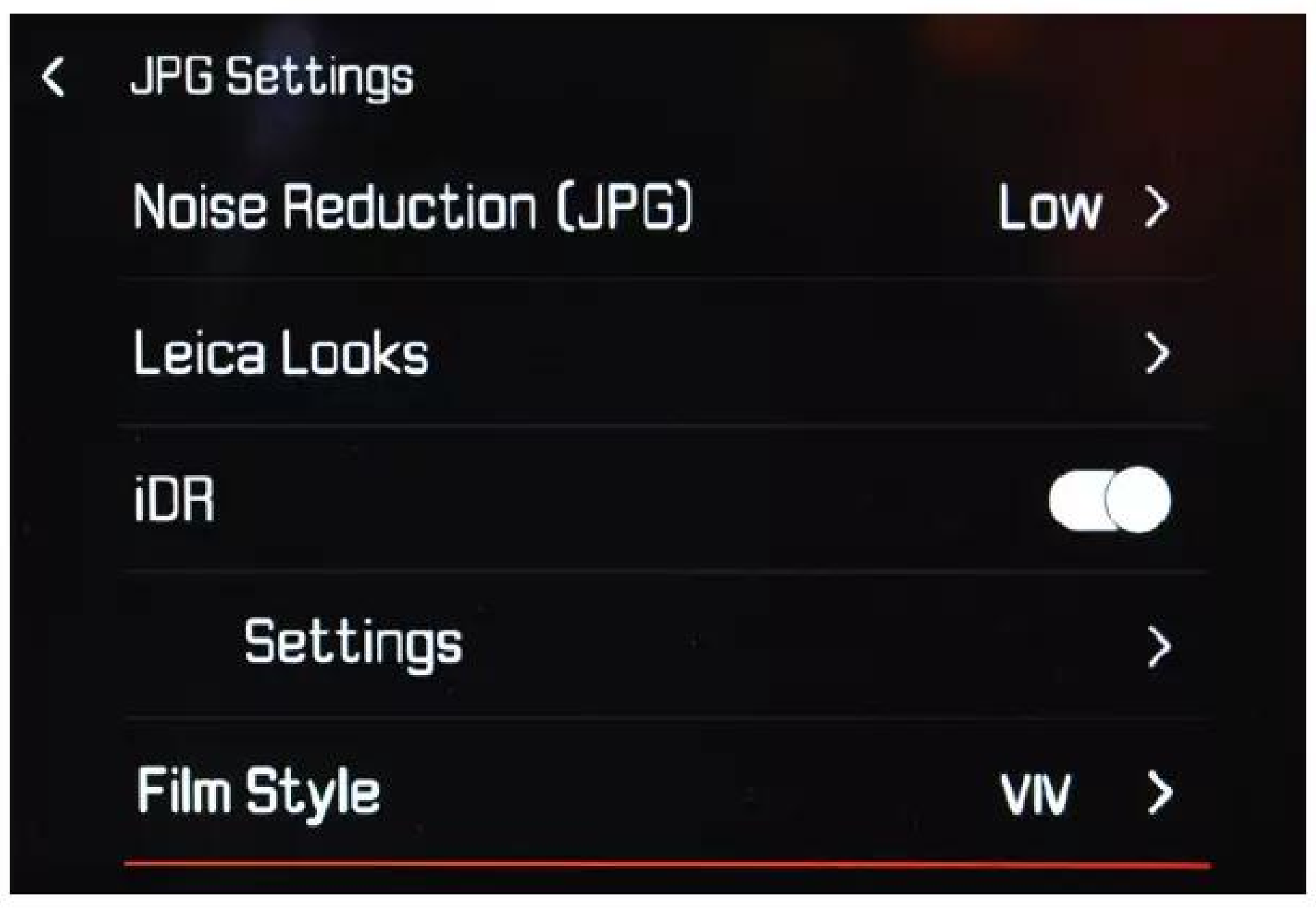
AF Mode >

Focus Settings >

Exposure Metering >

ISO Settings >

▲ Main menu scrolls continuously through its entirety, and has full touch screen implementation.



JPG Settings

Noise Reduction (JPG) Low >

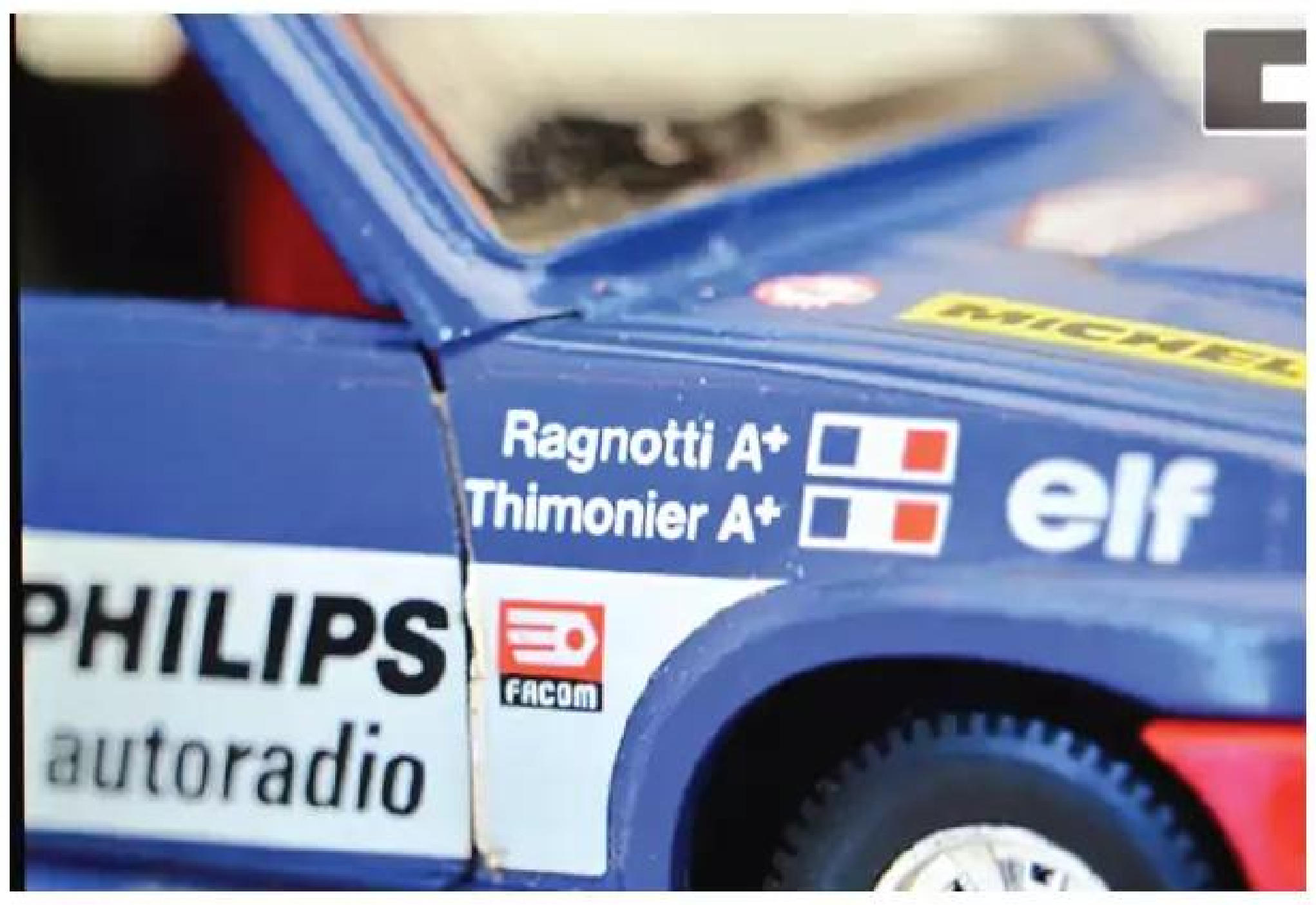
Leica Looks >

iDR

Settings >

Film Style VIV >

▲ JPEG processing settings include downloadable 'Leica Looks' which provision for storing six in-camera via the Leica FOTOS app.



▲ Manual focus aids comprise a magnified image and a focus peaking display (which is also available with autofocusing).

accompanying read-outs change accordingly. The main menu can be navigated via the toggle switch or, more conveniently, via the touch screen. Progressive right-clicks delve into the submenus and settings, but where it's simply a case of either On or Off, there are nifty little virtual switches which toggle between the two settings.

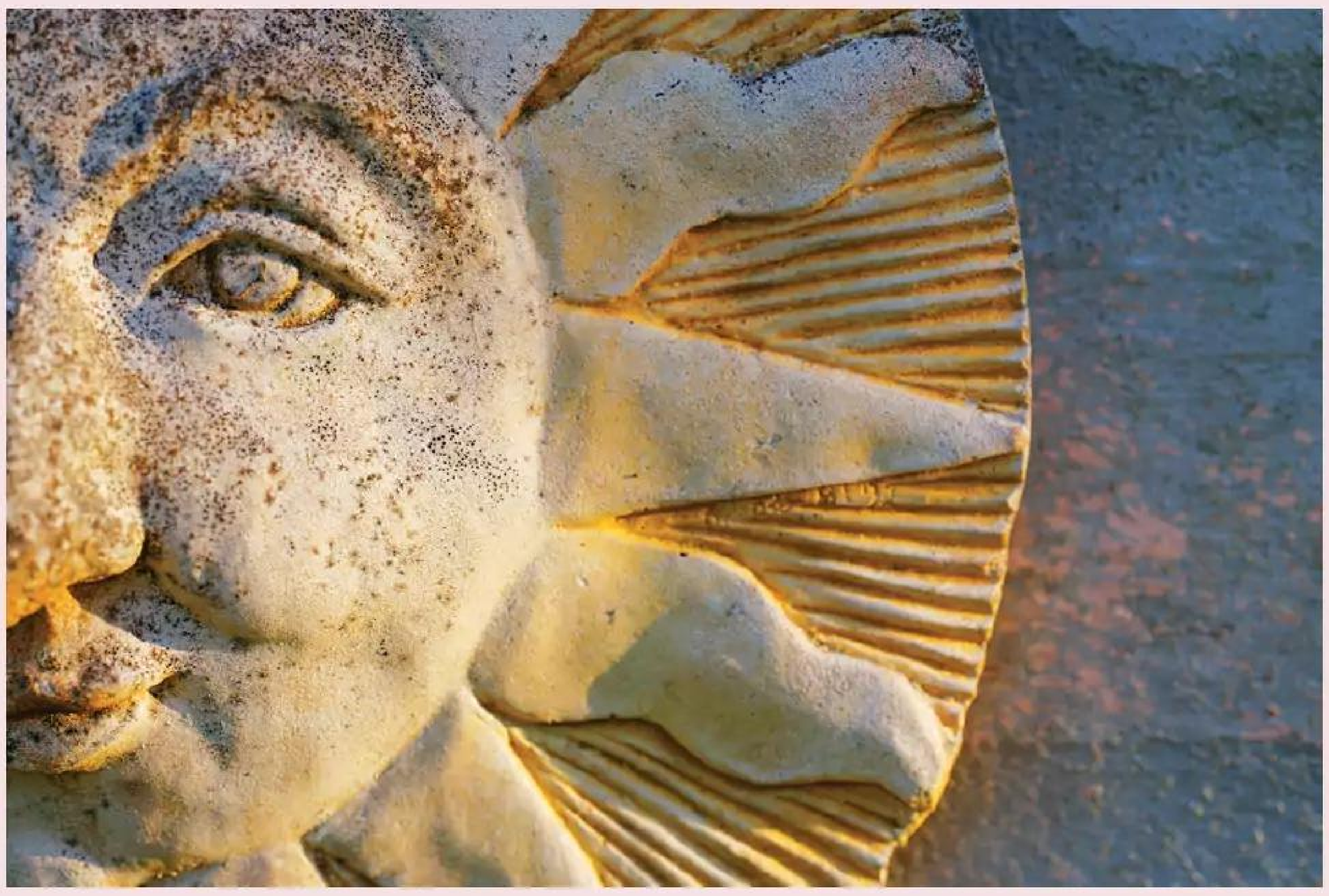
As on the SL3, the monitor screen is an 8.1 cm LED-backlit LCD display with a resolution of 2.33 megadots and the panel itself has an up/down tilt adjustment. The EVF is also unchanged from the SL3, so it's an OLED display with a resolution of 5.76 megadots and 0.78x magnification. The refresh rate is switchable between 60 and 120 fps, and there are also adjustments for brightness and colour balance (which is also the case for the monitor). As before too, it employs exceptionally high-quality optics in the eyepiece and, as we noted with the SL3, it's among the best mirrorless camera EVFs that there are (even compared to those with a higher resolution).

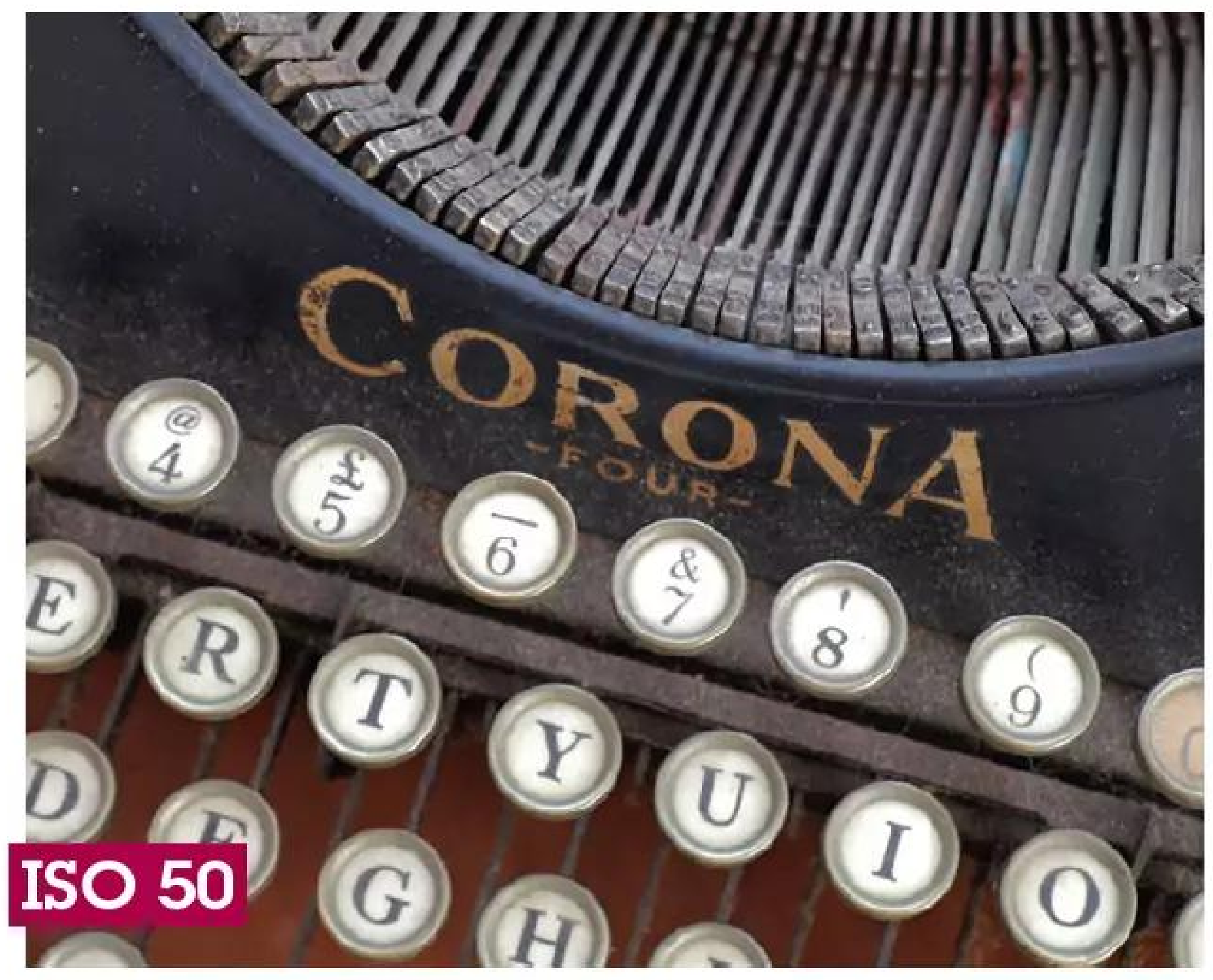
You can create four 'Info Profiles' which are customised live views displays which you can then cycle through using the 'FN' key. The selectable elements – which Leica calls 'Capture Assistants' – are a guide grid (either 3x3 or 6x4), a highlight warning (or a zebra pattern in the camera's video mode), the focus peaking display (which is available with both manual focusing and autofocus), a dual-axis level indicator, a real-time histogram and 'info bars' which run along the top and bottom of the live view screen plus, if selected, the right-hand side. Depending on your preference, you can have everything in the one screen or split them up to avoid too much clutter plus you can switch out the info profile slots you don't use so you only cycle through what you want.

The SL3-S is powered by the 2200 mAh BP-SCL6 battery pack – shared with the SL3 and the Q3 models – which here is good for around 315 shots per charge. In-camera battery recharging over USB C is the only option as an actual charger isn't included in the box, but there is an accessory dual battery unit and it's probably an advisable additional purchase (along with a second battery if you do a lot of long shoots). Alternatively, the SL3-S can be fitted with the HG-SCL7 vertical/battery grip which adds a second battery. In addition to the USB Type C port (which supports up to 10 Gbps data transfer), there's a full-size Type A HDMI 2.1 terminal along with a stereo audio input and output (both 3.5 mm minijack connections). What looks to be a PC flash terminal on the EVF housing is actually a time code sync output.

Along with all the latest Leica cameras, the SL3-S has Apple 'Made For iPhone' (MFi) certification which supports a direct connection to the more recent devices which have a USB C port rather than Lightning. Wireless hook-up is via Bluetooth 5.1 LE, and the WiFi connection supports faster MIMO transfer speeds of up to 35 MB/second, making wireless file transfers

Test images captured as JPEG/large files using the Leica Vario-Elmarit-SL 24-90mm f/2.8-4.0 ASPH zoom lens. Shutter-priority automatic exposure mode, multi-zone metering and the Vivid 'Film Style' profile at sensitivity settings from ISO 100 to 1600. The SL3-S tops the 24 MP full frame mirrorless class for image quality – out-of-the-camera JPEGs (there's only one size and quality level) exhibit superlative definition, detailing and dynamic range with great colours and punchy tonality.

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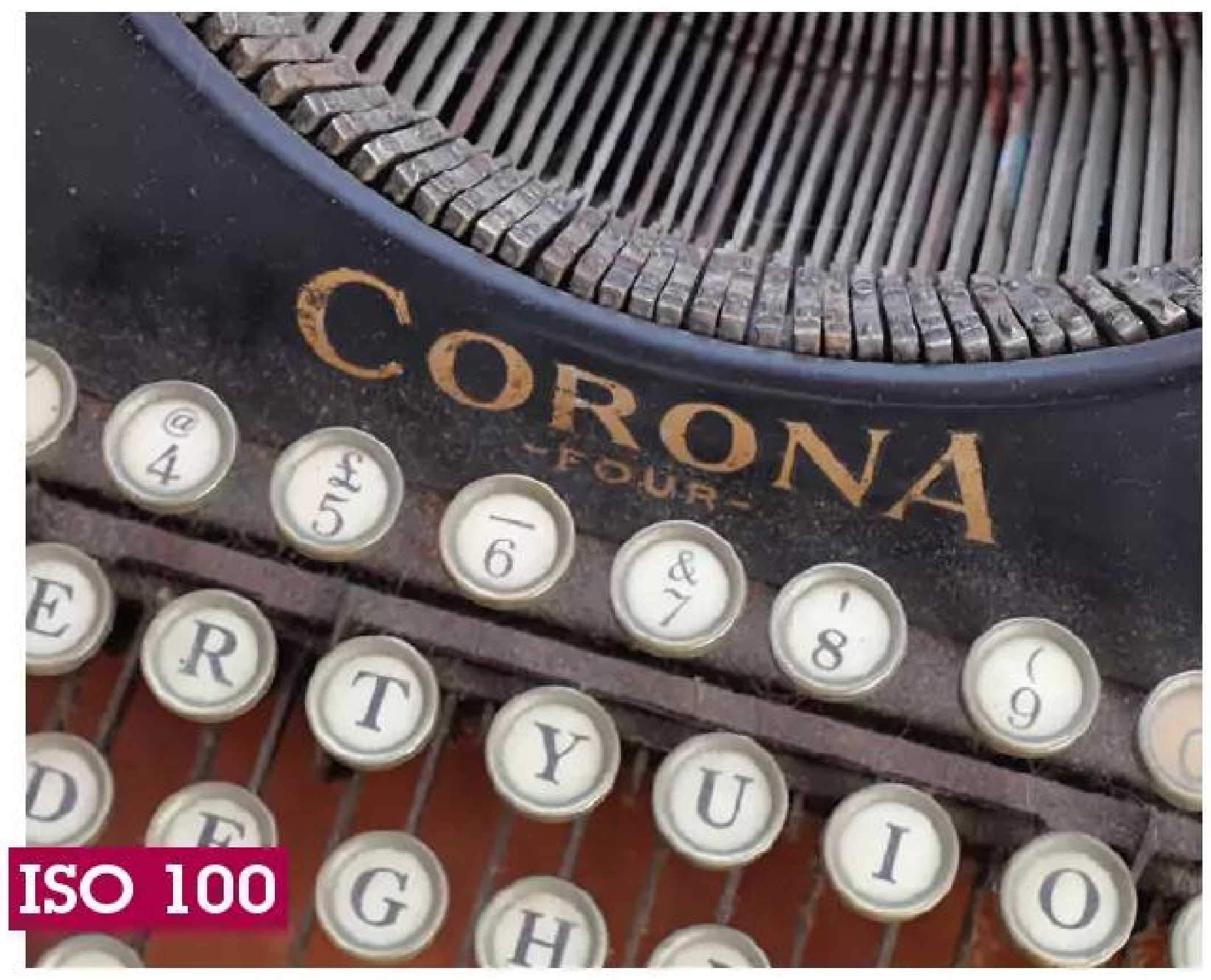
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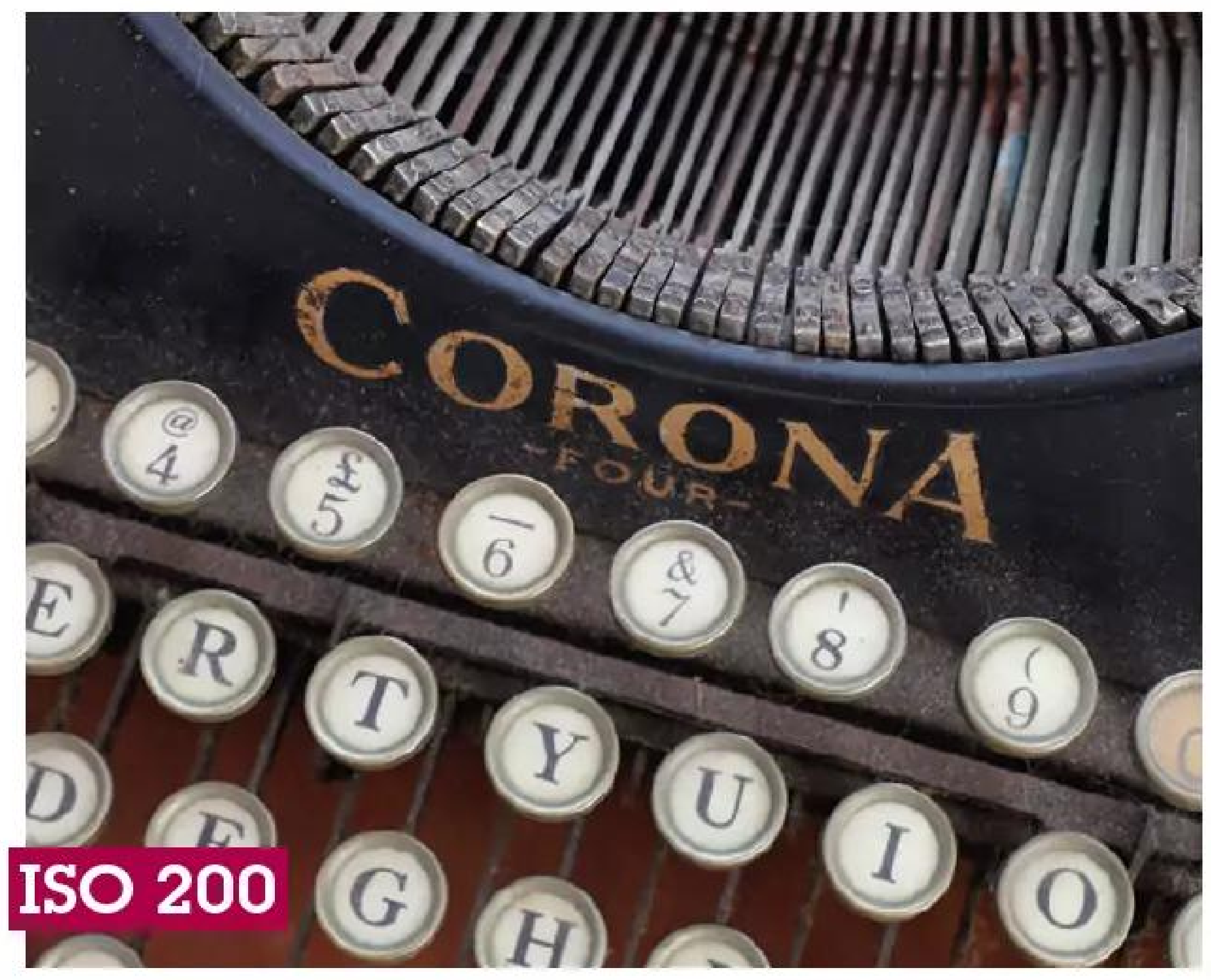
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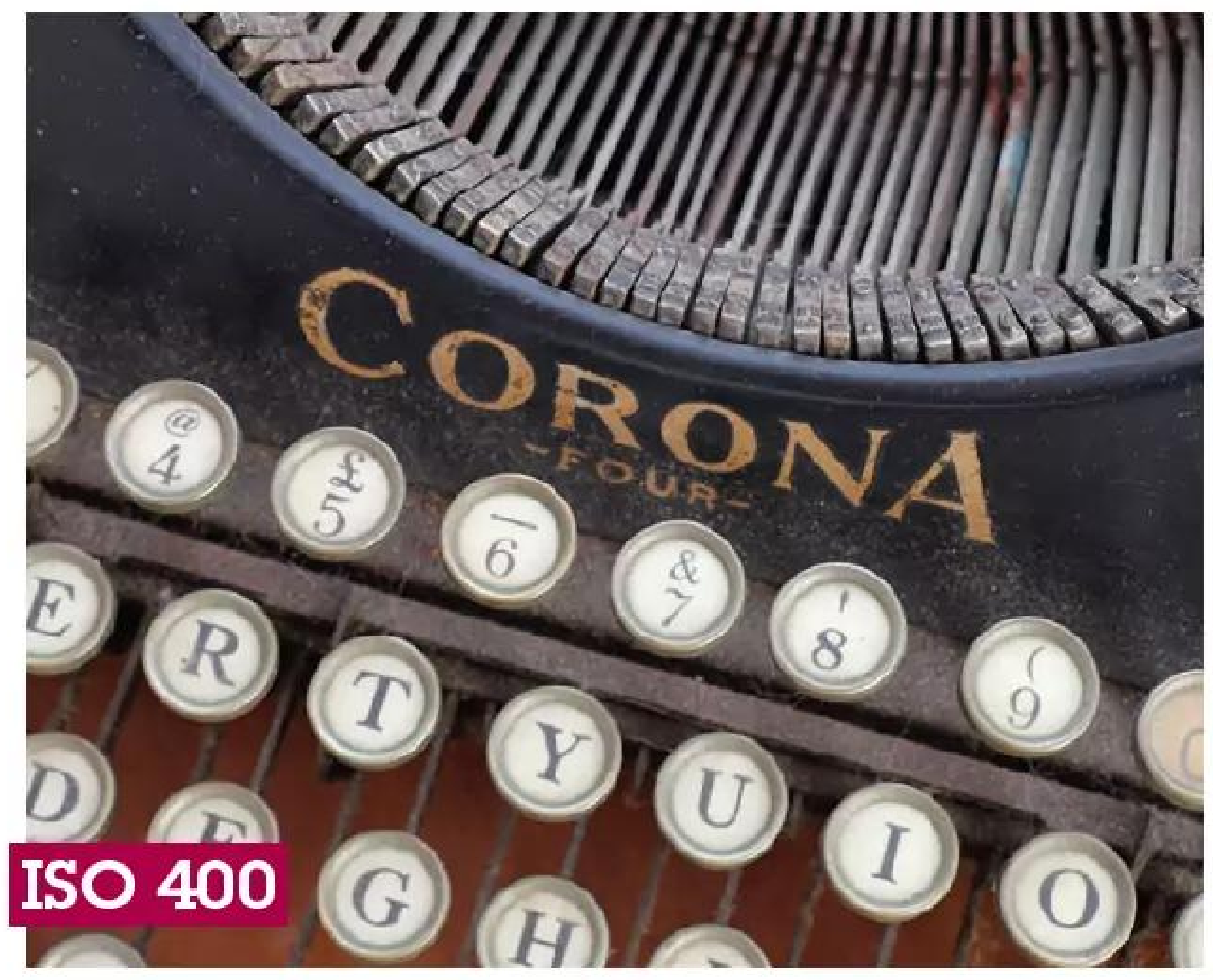
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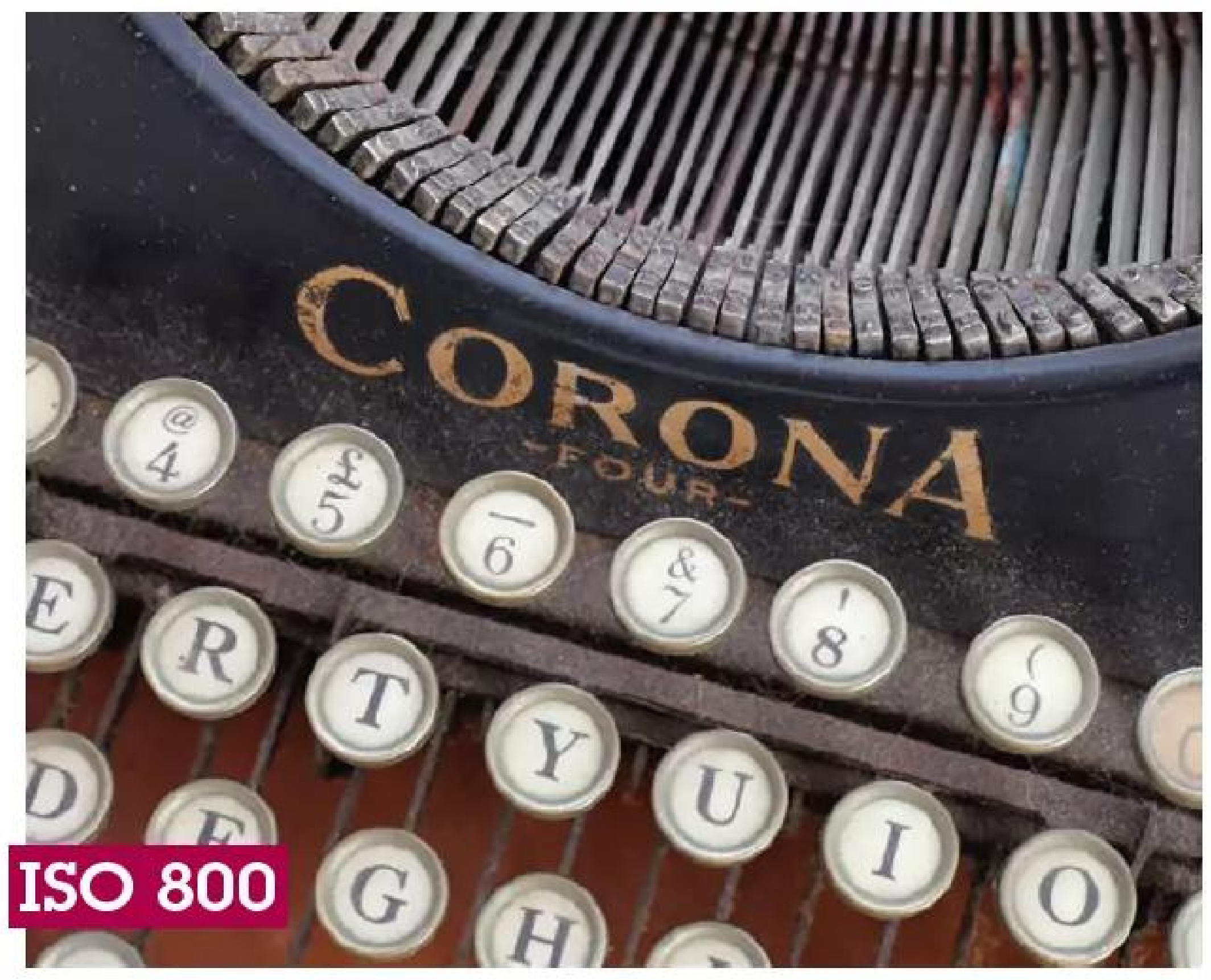
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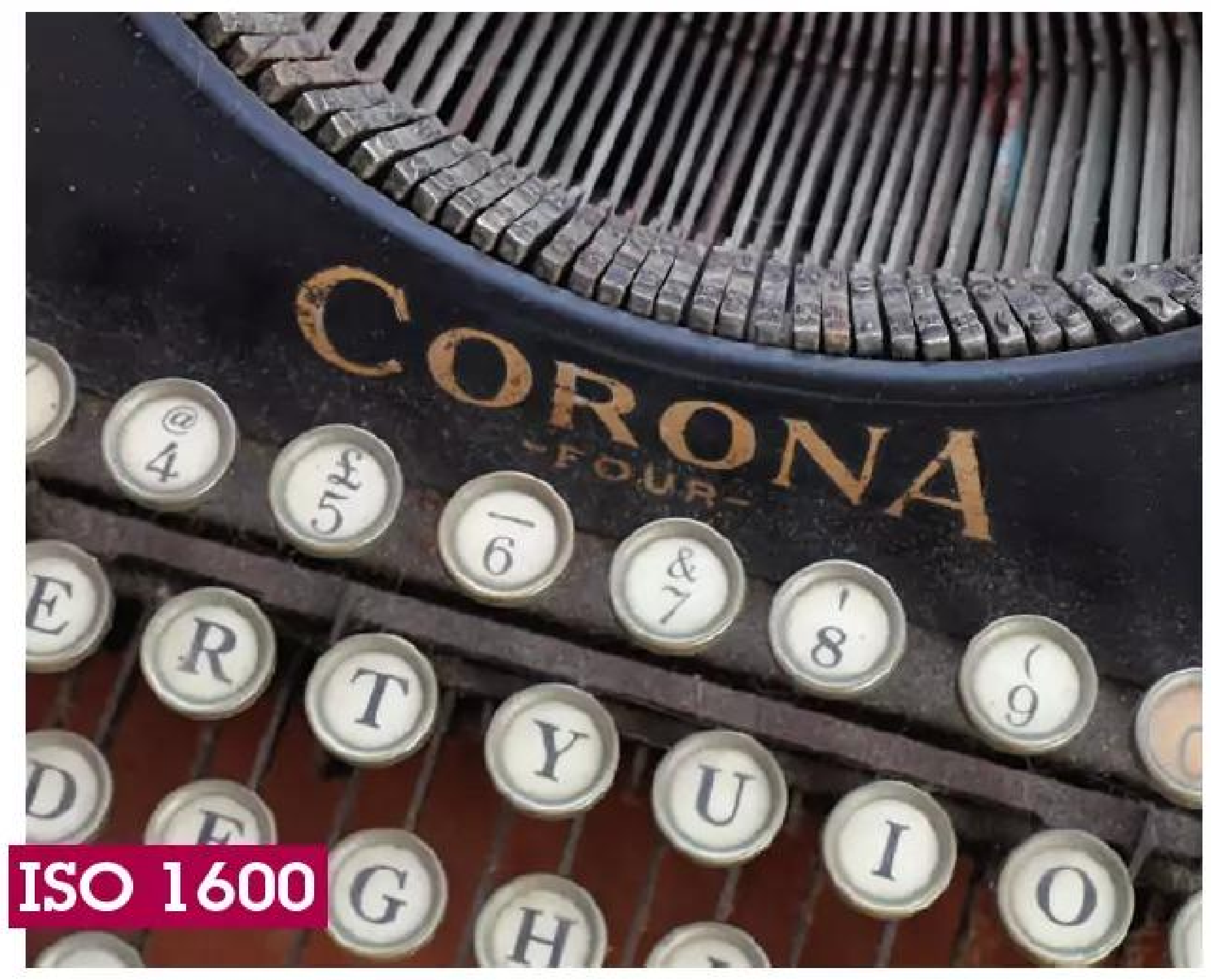
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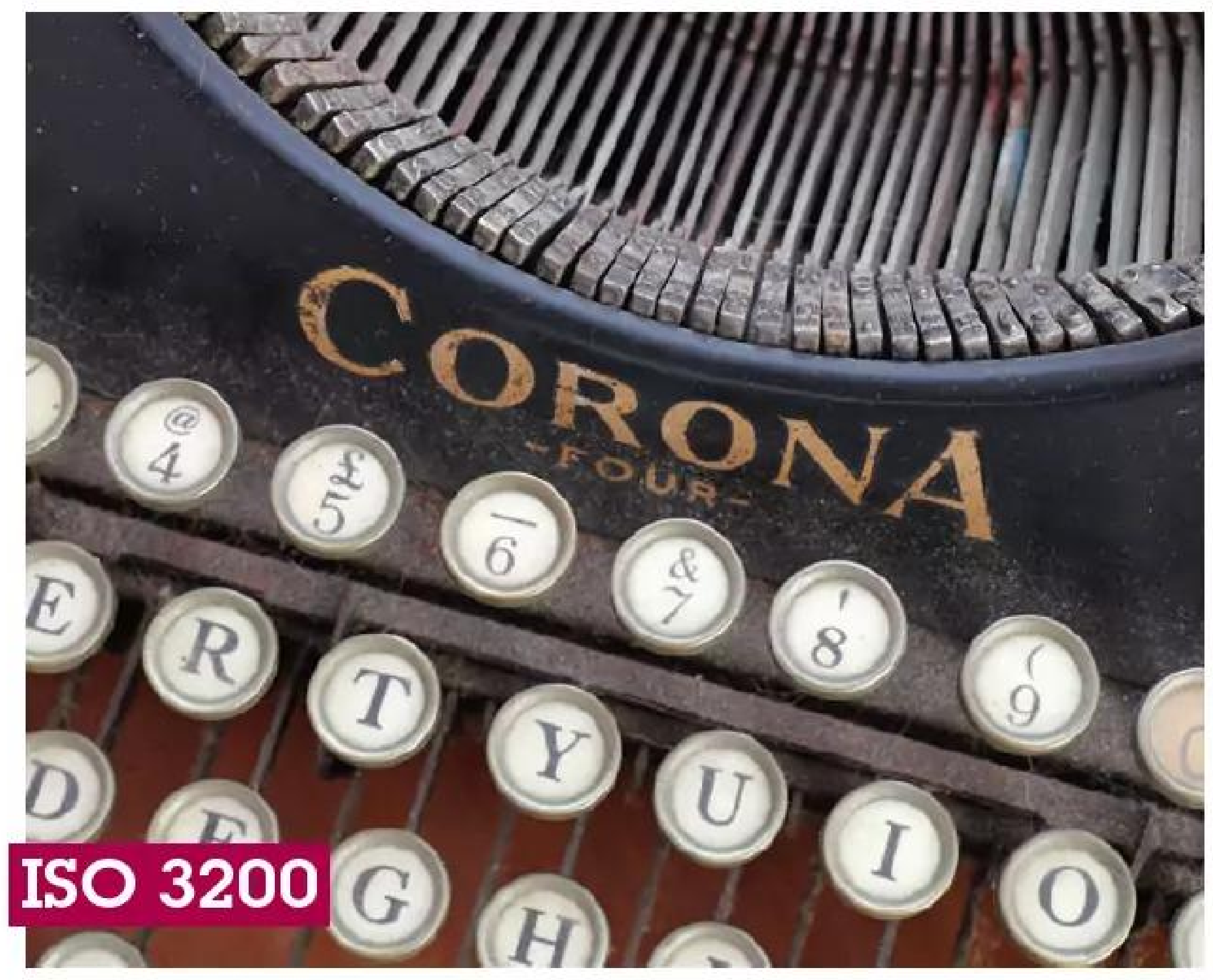
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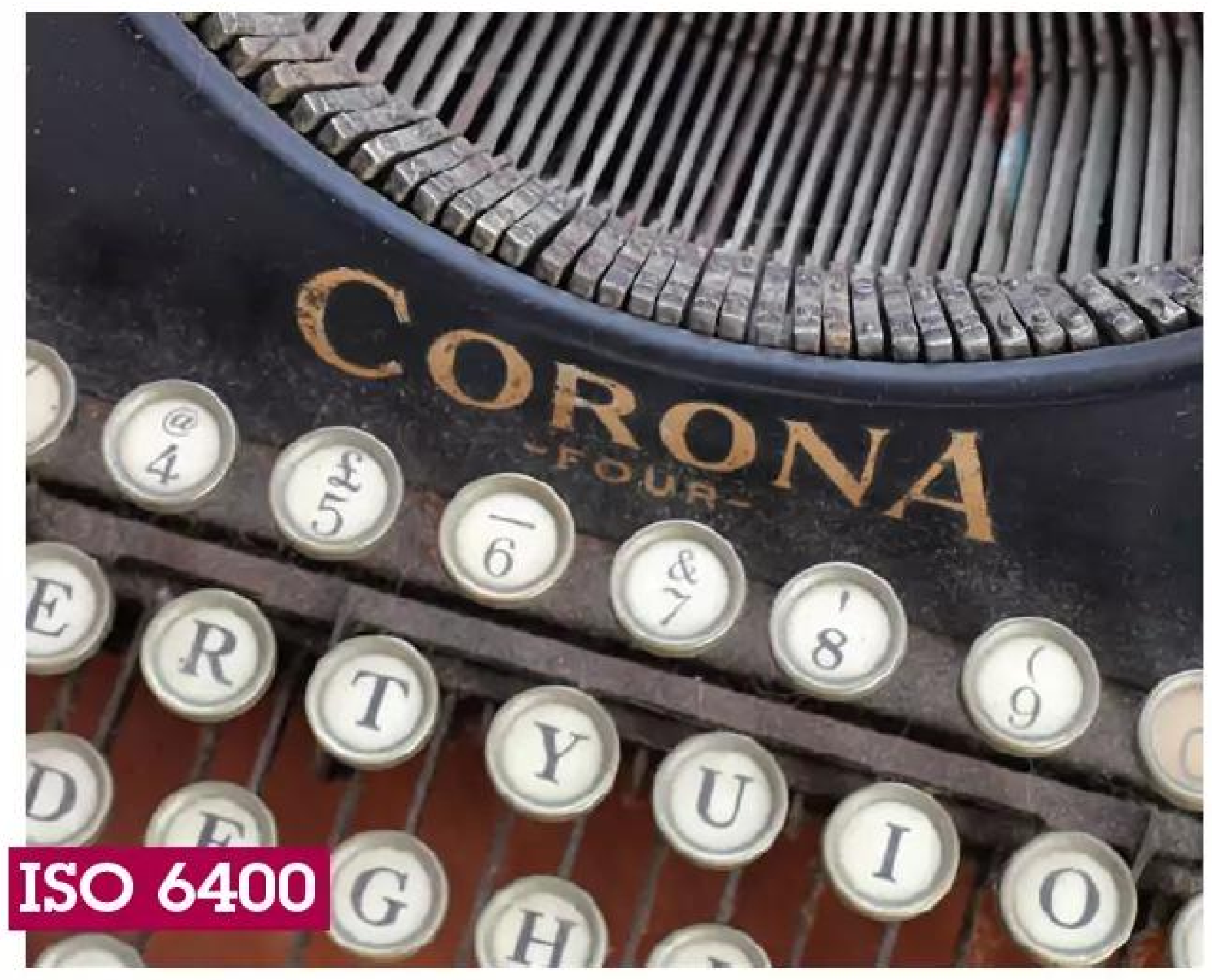
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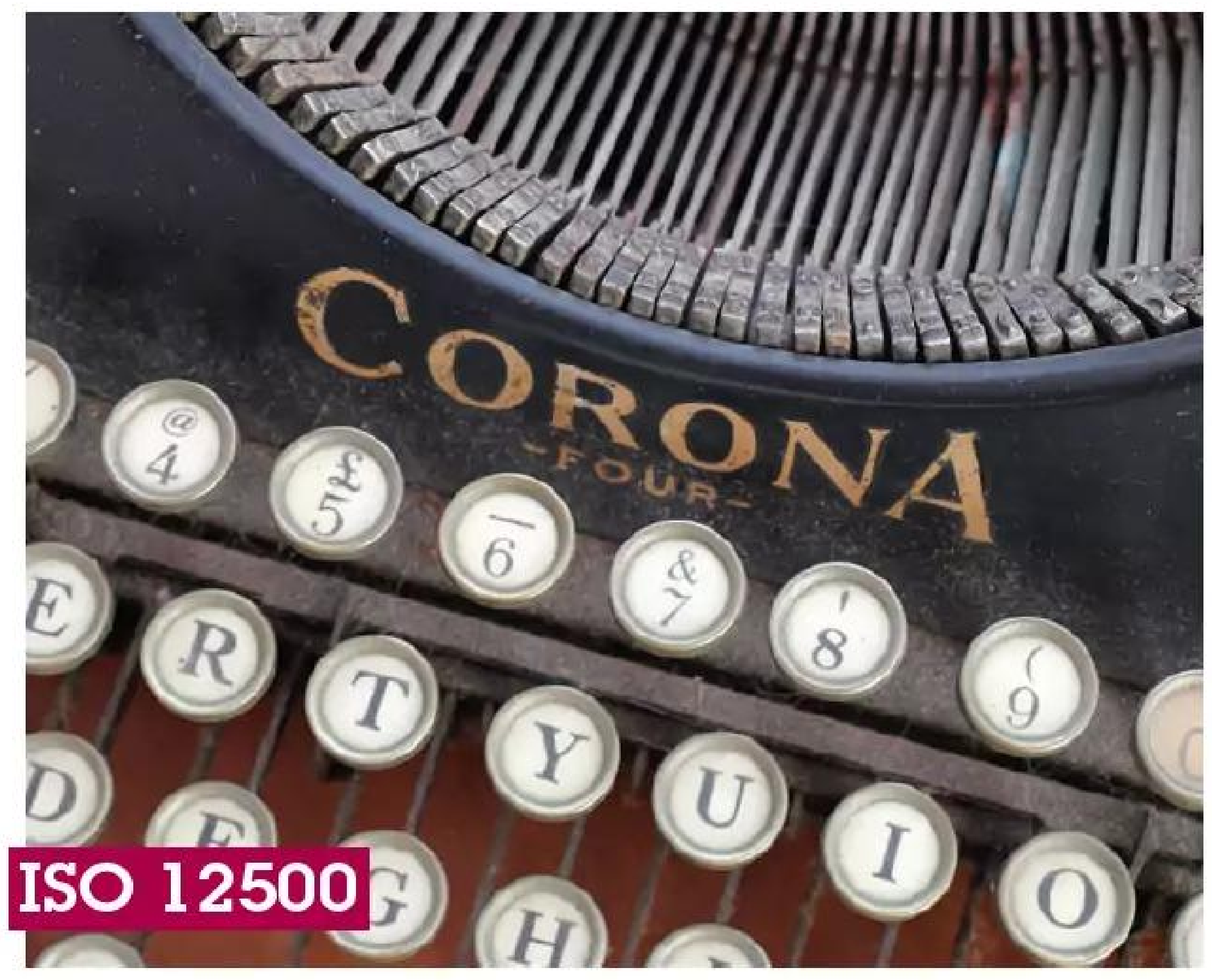
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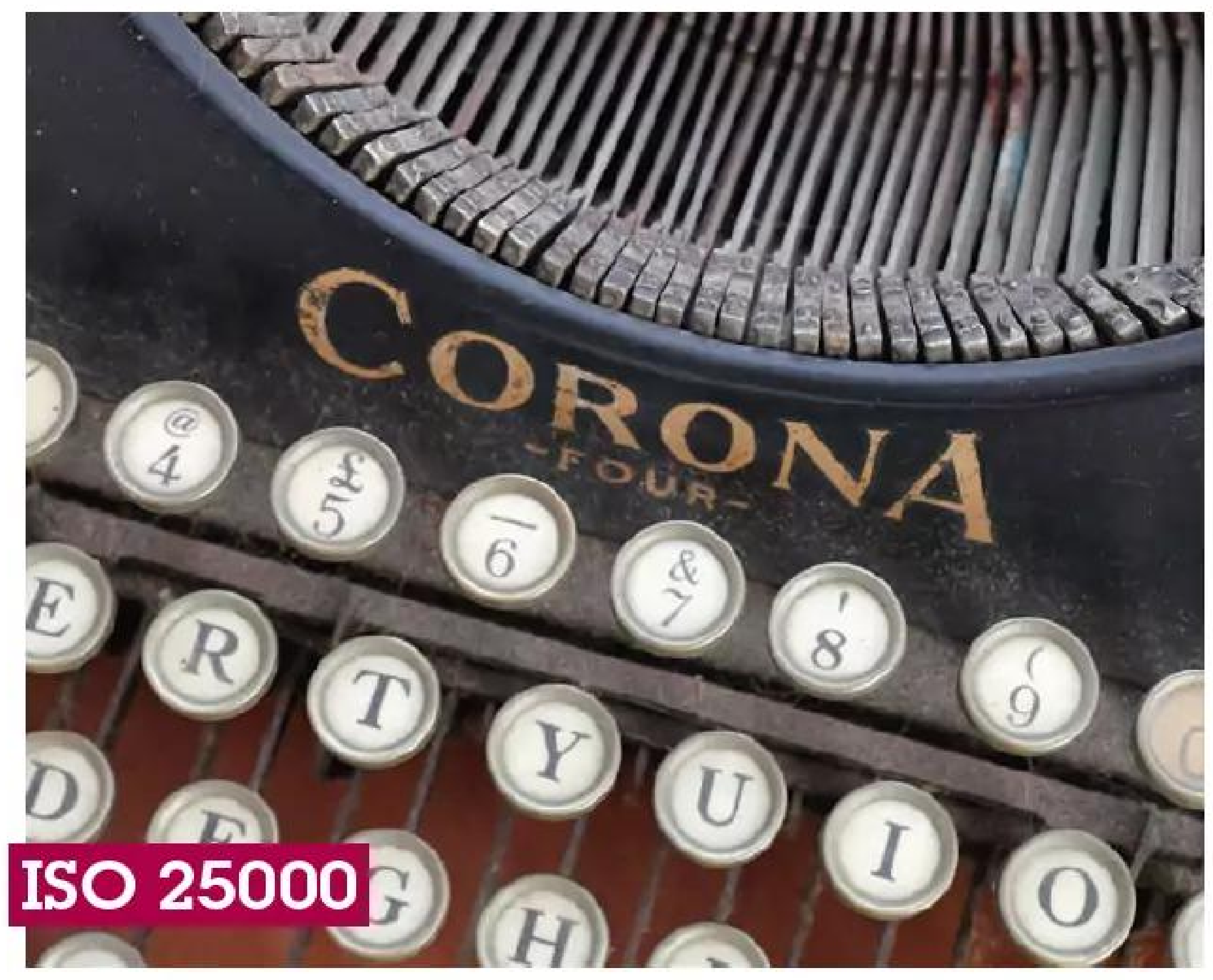
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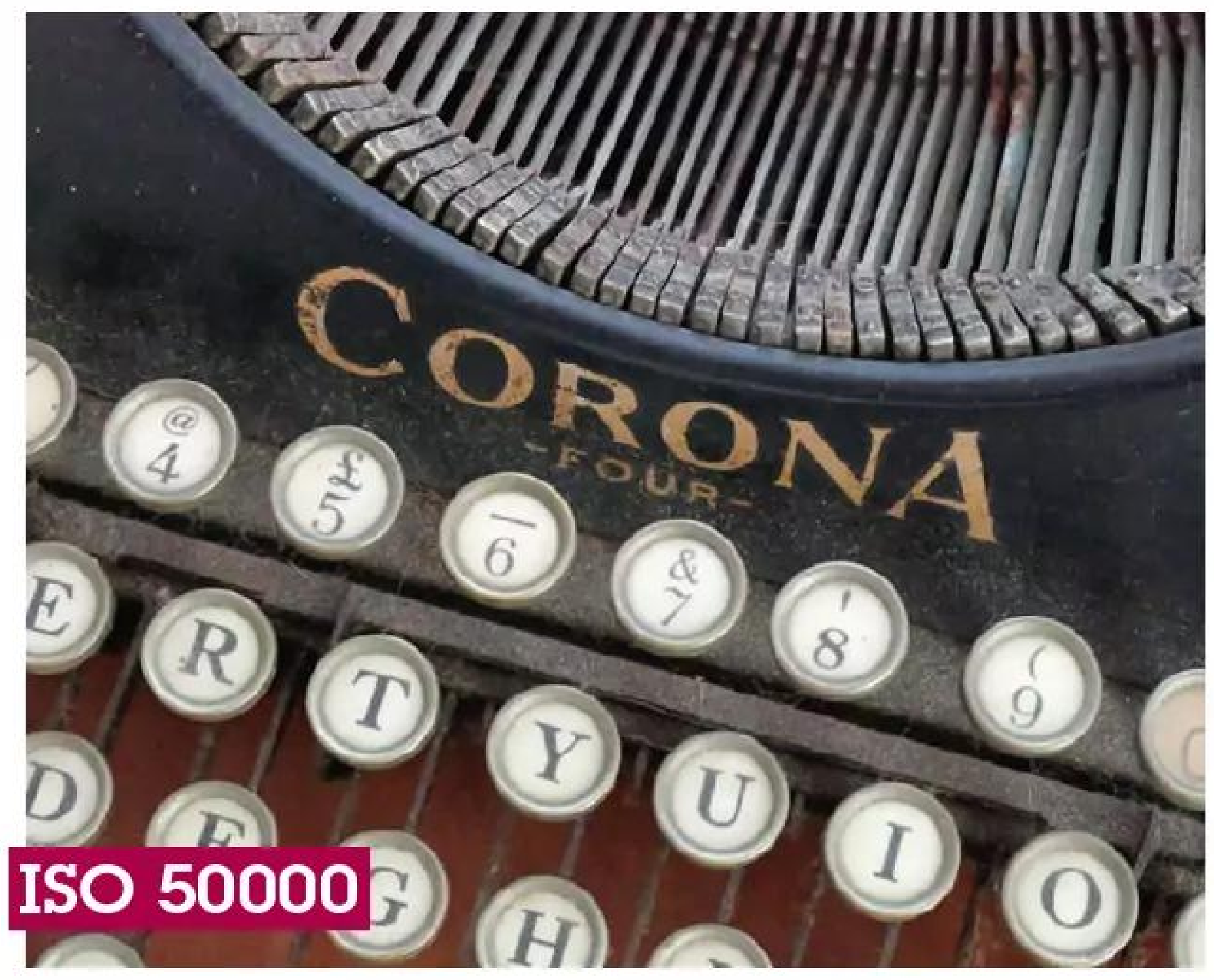
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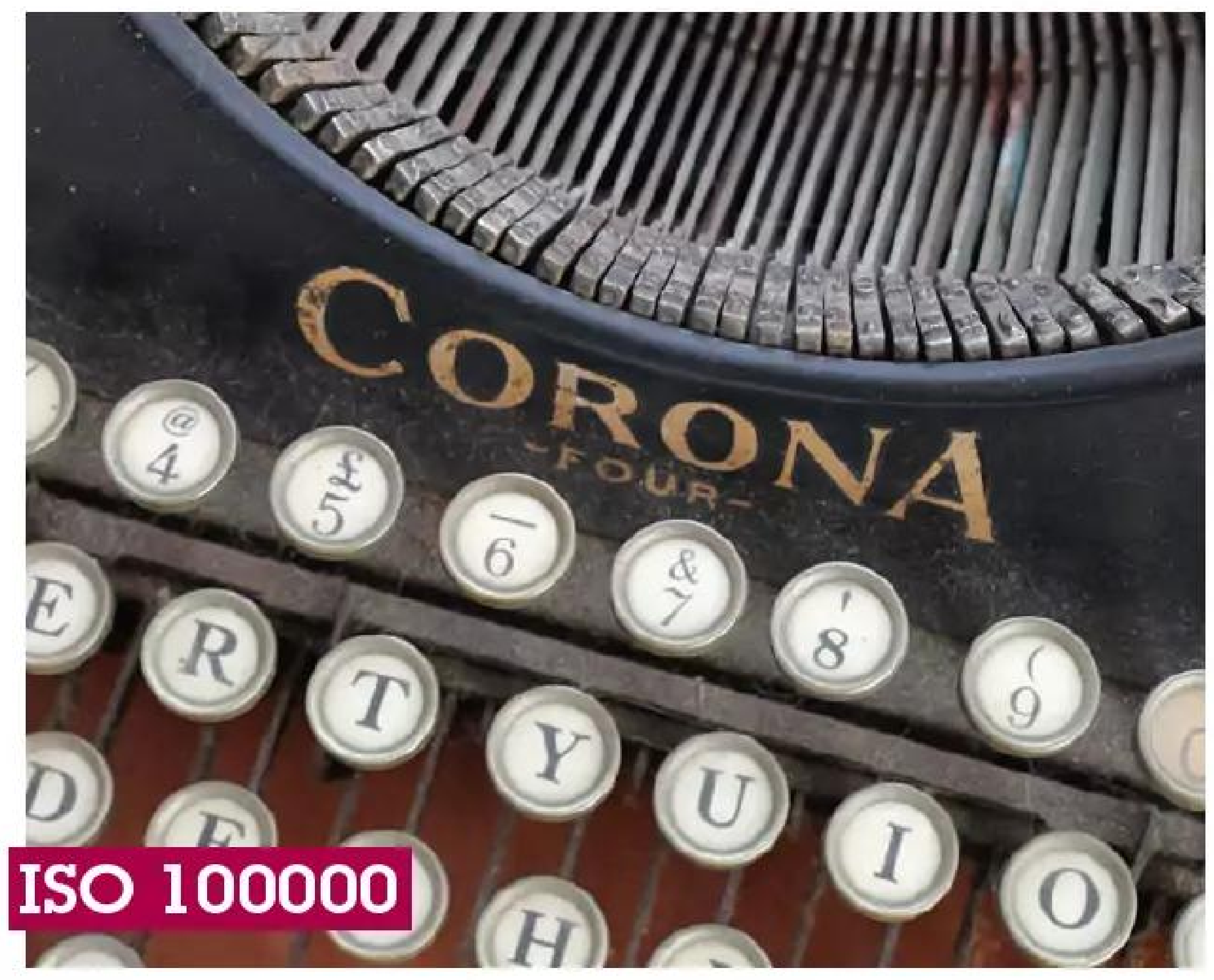
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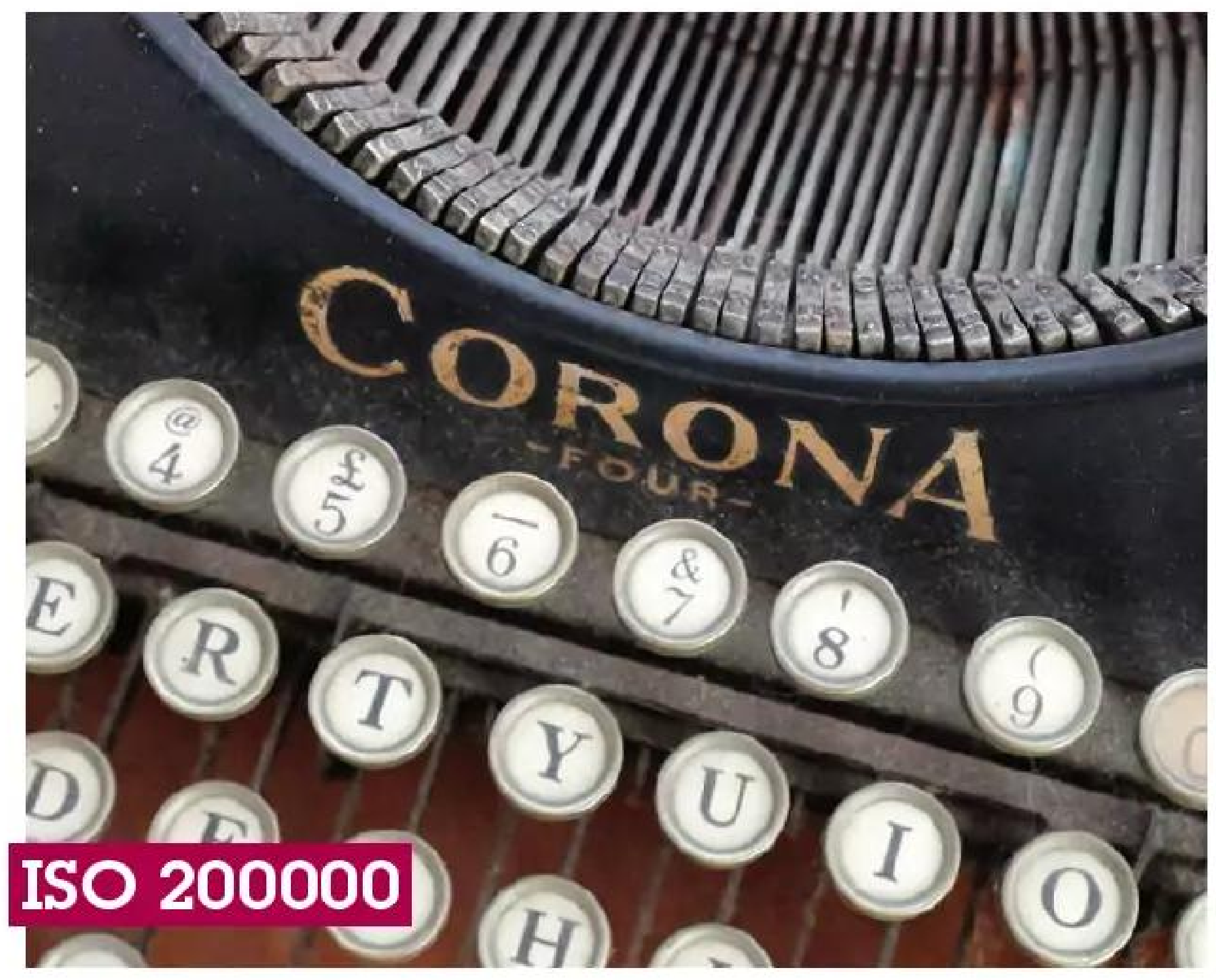

ISO 200000

TEST IMAGES – ISO RANGE

The SL3-S's native sensitivity range spans ISO 50 to 200,000. Dual conversion gain circuitry enhances the high ISO performance by having two base ISO settings... in this case set at ISO 50 and 560 (and ISO 400 and 2500 when shooting video in the L-log profile). JPEGs maintain good definition and colour saturation all the way up to ISO 25,000, and there's only slight softening evident at ISO 50,000. These images are JPEG/large files taken using the aperture-priority auto exposure mode and with the aperture set to f/11 so the exposure time varies to compensate for the adjustments to ISO. Long exposure noise reduction is switched off, Noise Reduction set to Low (it can't be switched off entirely). Leica Vario-Elmarit-SL 24-90mm f/2.8-4.0 ASPH zoom lens.

> THE SL3-S'S IQ PUTS IT AT THE TOP OF THE 24 MEGAPIXELS FULL FRAME MIRRORLESS CLASS WHICH IS QUITE AN ACHIEVEMENT BECAUSE THERE'S QUITE A BIT OF TALENT IN THESE RANKS."

significantly quicker (via the Leica FOTOS mobile app). Similar to Panasonic's latest Lumix S1RII, the SL3-S supports tethered shooting via USB C using the Capture One image editing software which enables a much more efficient workflow when shooting in a studio situation. Coming soon is support for the 'Frame.io Camera to Cloud' cloud service so high-res images and video clips can be directly uploaded to Adobe's Frame.io software platform as they're recorded.

SPEED AND PERFORMANCE

Loaded with a SanDisk Extreme Pro 64 GB SDXC UHS-II V90 speed memory card and using the sensor shutter, the SL3-S captured a sequence of 180 full-size JPEG/large frames in 5.881 seconds which represents a shooting speed of 30.6 fps. Switching to the focal plane shutter, a burst of 69 JPEGs in 9.776 seconds which equates to 7.05 fps. The JPEG test files averaged 13 MB in size. Of course, it's probably not often that you'll need the 30 fps speed so it's good that you can use the sensor shutter – for silent shooting – at 15 fps or any of the much slower frame rates.

The hybrid autofocusing system delivers improvements in speed and accuracy and is a big step up from the SL2-S. It's clearly fast enough to support shooting at 30 fps which comes with full AF adjustment between the frames. This also means you get reliable subject tracking at this speed and the recognition modes ensures the focus stays locked on even with sudden changes in speed and direction. The recognition for humans will also deal with when your subject turns away from the camera, switching to either the face in general or the whole body when necessary which obviously present bigger targets. The AF isn't without the odd hiccup though, as it does occasionally seem to get confused about what it's looking at – particularly with the Zone area and the AF-S mode – and basically stop so it was necessary to do the half-press of the shutter release again, and then it clicked straight back into action. However, there were no such hesitations in the AF-C mode which is good news when you're shooting moving subjects.

As we've noted before, 24 megapixels is a resolution 'sweet spot' for a full frame sensor, delivering plenty of definition along with the increased signal-to-noise ratio of bigger pixels to the benefit of both dynamic range and high ISO performance. The SL3-S's sensor builds on this with its dual gain circuitry which, in this case, means the noise characteristics are the same at ISO 560 as they are at ISO 50… with this three stops advantage carrying on to the higher sensitivity settings… which means, in effect, everything is still holding up very well at ISO 6400 in terms of both the colour saturation, definition and tonality. As a result, the subsequent fall-offs at the even higher sensitivity settings are comparatively minimal and you can easily shoot at up to ISO 25,000 without seeing any significant loss of image quality. The dynamic range also benefits here – only dipping below 12 stops as you hit ISO 6400 –and so provides plenty of exposure latitude when shooting in RAW so you can underexpose by up to around four stops to help preserve more detail in the brighter highlights, but still be able to lighten the shadows without creating much noise.

The imaging performance overall is where Leica makes its mark and so the SL3-S's crowning achievement is delivering superbly crisp and contrasty images which definitely have a distinctive look. In the 35mm days, we talked about a "Leica look" (no doubt why the term has been adopted again), but obviously this was all down to the lenses and Leica's very particular formulations for its optical glass. The lenses are still very much a contributing factor (with their all-glass optical constructions), but it's also how Leica processes the imaging data for colour and contrast as well as balancing the noise reduction and definition. As a result, the SL3-S's IQ puts it at the top of the 24 megapixels full frame mirrorless class which is quite an achievement because there's quite a bit of talent in these ranks, most notably Nikon's models.

THE VERDICT

With its third generation SL mirrorless cameras Leica has rounded off many of the earlier rough edges while still maintaining a… let's say… individualistic user experience. There's nowhere near as much unlearning needed as there is with the Sigma BF – and it's worth noting here that both cameras share the same basic genetics of being 24 megapixels full frame L mount models – but Leica still does thing quite differently, albeit with an undeniable logic that ultimately promotes efficiency. Once you're on top of it, the SL3-S is both involving and enjoyable to use, and as already noted, there is a definite appeal to the way it looks, feels and works. Call it a mystique, an aura or a presence, but it is what makes a Leica a Leica… and it's what you're buying when you pick Leica over any of its Japanese rivals. Of course, there are more tangible rewards such as the superlative optical performance of the SL lenses and the distinctive Leica handling of colour and tonality.

Apart from the greater affordability (relatively speaking, of course), the 24 MP camera is also arguably more flexible than its 60 MP sibling, especially in terms of its video capabilities, but also in its balancing of resolution and high ISO image quality. Throw in the superlative build quality and the unique user experience – not to mention a certain satisfaction in the ownership – and the SL3-S more than justifies the investment.

VITAL STATISTICS

LEICA SL3-S $8990

body only, recommended retail price

Type: Enthusiast/professional mirrorless digital camera with L bayonet lens mount.

Focusing: Hybrid phase/contrast-detection measurement with 779 PDAF focusing points and 315 CDAF focusing points. Contrast detection via Depth-From-Defocus (DFD) calculations. Manual and automatic ('Intelligent AF') switching between one-shot and continuous AF modes, the latter with auto tracking. Area modes for Spot, Zone (nine points), Multi-Field, Field, Tracking, Eye/Face/Body Detection for humans and Eye/Face/Body Detection for animals. AF Profiles for Children/Pets, Team Sports, Runner and Wildlife. Touchpad AF point/zone selection available via touch screen monitor. Focus assist via magnified image (three settings) and focus peaking displays (Red, Green, Blue and White; and three levels of intensity). Sensitivity range is EV -6.0 - 18 (ISO 100, f/1.4). Low light/contrast assist provided by built-in LED illuminator.

Metering: Multi-zone, centre-weighted average, highlight-weighted average, spot and TTL flash. Metering range is EV 0 to 18 (ISO 100 and f/1.4).

Exposure Modes: Continuously-variable program with shift, shutter-priority auto, aperture-priority auto and metered manual.

Shutter: Electronic focal plane, vertical travel, metal blades. 30 minutes to 1/8000 second plus 'B' (up to 30 minutes). Flash sync up to 1/200 second. Sensor-based shutter has speed range of 60-1/16,000 second. Hybrid 'electronic first curtain shutter' mode. Exposure compensation of up to +/-3.0 EV in ½ or 1/3 stop increments.

Viewfinder: OLED with 5.76 megadots resolution. 0.78x magnification and 100% vertical/horizontal scene coverage. Switchable 60/120 fps refresh rate. Eyepiece strength adjustment built-in. 8.1 cm LED-backlit LCD monitor panel with 2.33 megadots resolution with touch screen controls, adjustable for up/down tilt and with an anti-scratch coating. Both the EVF and monitor are adjustable for brightness and colour balance. Automatic or manual switching between the EVF and the monitor screen.

Flash: No built-in flash. External flash units sync via hotshoe.

Additional Features: Milled aluminium two-piece body over a magnesium alloy chassis and sealed against dust and moisture (IP54 standard) and insulated for sub-zero temperatures, monochrome camera read-out display, auto exposure bracketing (up to +/-3.0 EV per frame over three or five frames), AE lock, multi-mode self-timer (two, six, 12 or 30 seconds delays), audible signals, auto power off with adjustable timing. Accepts Leica T/TL mount lenses for capture in the 'APS-C' format. Accepts Leica M, S and R mount lenses via adaptors.

DIGITAL SECTION

Sensor: 24.6 million pixels effective (25.3 million total) BSI-type CMOS type with 24.0x36.0 mm imaging area. No optical low-pass filter. Sensitivity range equivalent to ISO 50-200,000 (ISO adjustments in 1/6, 1/3, ½ or full stop increments).

Focal Length Increase: None.

Formats/Resolution: JPEG compression on two resolution settings; 6000x4000 and 3936x2634 pixels (i.e. 'APS-C'). RAW files captured at 6000x4000 or 3936x2634 pixels in the Adobe DNG format. RAW+JPEG capture. 24-bit RGB colour for JPEGs, 42-bit RGB colour for RAW files. Choice of six aspect ratios – 3:2, 7:5, 4:3, 1:1, 3:1 and16:9.

Recording Media: Dual slots for CFexpress Type B and SD/SDHC/SDXC memory cards with UHS-II speed support.

Video Recording:

- MOV format with 10-bit 4:2:2 colour (Apple ProRes 422HQ codec) at 30, 25 or 24 fps (up to 1939 Mbps) and 17:9 aspect ratio. At 4096x2160 pixels (4K DCI); 60, 50, 30, 25 or 24 fps (up to 1944 Mbps) and 17:9 aspect ratio (with a 1.5x crop at 50/60 fps). At 1920x1080 pixels (Full HD); 60, 50, 30, 25 or 24 fps (up to 454 Mbps) and 16:9 aspect ratio (with a 1.5x crop at 50/60 fps).
- MOV format with 10-bit 4:2:2 colour (MPEG 4 AVC/H.264 codec) at 4096x2160 pixels (4K DCI); 60, 50 or 48 fps (All-Intra compression, 600 or 800 Mbps) and 17:9 aspect ratio with a 1.5x crop. At 4096x2160 pixels (4K DCI); 30, 25 or 24 fps (All-Intra compression, 400 Mbps) and 17:9 aspect ratio. At 3840x2160 pixels (4K UHD); 60, 50 or 48 fps (All-Intra compression, 600 or 800 Mbps) and 16:9 aspect ratio. At 3840x2160 pixels (4K UHD); 30, 25 or 24 fps (All-Intra compression, 400 Mbps) and 16:9 aspect ratio. At 1920x1080 pixels (Full HD), 120 or 100 fps (All-Intra compression, 400 Mbps) and 16:9 aspect ratio with a 1.5x crop. At 1920x1080 pixels (Full HD); 60, 50, 48, 30, 25 or 24 fps (All-Intra compression, 200 Mbps) and 16:9 aspect ratio (with a 1.5x crop at 50/60 fps).
- MOV format with 10-bit 4:2:0 colour (HEVC/H.265 codec) at 5952x3968 pixels (6K 'open gate'); 30, 25 or 24 fps (LongGOP compression, 200 Mbps) and 3:2 aspect ratio.
- MOV format with 8-bit 4:2:0 colour (HEVC/H.265 codec) at 5952x3136 pixels (6K DCI); 30, 25 or 24 fps (LongGOP compression, 200 Mbps) and 17:9 aspect ratio. At 5888x3312 pixels (6K UHD); 30, 25 or 24 fps (LongGOP compression, 200 Mbps) and 16:9 aspect ratio.
- MP4 format with 10-bit 4:2:0 colour (MPEG 4 AVC/H.264 codec) at 3840x2160 pixels (4K UHD); 60, 50, 30, 25 or 24 fps (LongGOP compression, 100 Mbps) and 16:9 aspect ratio (with a 1.5x crop at 50/60 fps).
- MP4 format with 8-bit 4:2:0 colour (MPEG 4 AVC/H.264 codec) at 1920x1080 pixels (Full HD); 60, 50, 30, 25 or 24 fps (LongGOP compression, up to 28 Mbps) and 16:9 aspect ratio (with a 1.5x crop at 50/60 fps).
- Built-in stereo microphones with auto/manual levels control, gain adjustment and wind-cut filter. Stereo audio input and output.

Video Features: Time code support (free run and rec run), L-Log gamma profile, Hybrid Log Gamma (HLG) HDR profile, choice of L-Log LUTs, five 'Video Style' presets (Standard, Vivid, Natural, Monochrome and Monochrome High Contrast), adjustable 'Video Style' parameters (Contrast, Sharpness and Saturation), six video aspect ratios (1.33:1, 1.66:1, 1.78:1, 1.85:1, 2.35:1 and 2.40:1), Slow Motion Full HD recording (180 fps sensor output to 30 fps, 150 fps sensor output to 25 fps, 120 fps sensor output to 30 fps, 100 fps sensor output to 25 fps), external video recording to SSD via USB C, recording indicator frame (in red), zebra patterns (with adjustable limits), colour bars (SMPTE, EBU or ARIB), waveform monitor, focus peaking displays; time code sync terminal; dedicated Cine mode adjusts info displays (monitor and top panel) to EI ASA, shutter angles and T-stops.

HDMI Output: 12-bit RAW at 5888x3312 pixels (5.9K); 30, 25 or 24 fps and 16:9 aspect ratio. At 4096x2160 pixels (4K DCI); 60, 50, 30, 25 or 24 fps and 17:9 aspect ratio. At 3536x2656 pixels (3.5K); 50, 30, 25 or 24 fps and 4:3 aspect ratio.

4K DCI 17:9 with 10-bit 4:2:2 colour and 60, 50, 48, 30, 25 or 24 fps. 4K UHD 16:9 with 10-bit 4:2:2 colour and 60, 50, 48, 30, 25 or 24 fps. Full HD 16:9 with 10-bit 4:2:2 colour and 120, 100, 60, 50, 48, 30, 25 or 24 fps.

Continuous Shooting: Up to 175 JPEG/large frames at 30.0 fps or 175 RAW with the sensor-based shutter (with continuous AF/AE/AWB adjustment, 12-bit RAW capture). Up to 1000 JPEG/large frames at 7.0 fps or 680 RAW with the focal plane shutter (with continuous AF/AE/AWB adjustment, 12-bit RAW capture). Up to 1000 JPEG/large frames at 5.0 fps or 1000 RAW with the focal plane shutter (with continuous AF/AE/AWB adjustment, 14-bit RAW capture). Slow speed capture at 15, 7.0, 5.0 or 2.0 fps with the sensor shutter and 5.0 or 2.0 fps with the FP shutter.

White Balance: Auto correction with eight presets, 'Greycard' and 'Greycard pipette' custom measurements, and manual colour temperature setting (2000 to 11,500 degrees Kelvin).

Interfaces: USB 3.1 Gen. 2 (Type C), HDMI 2.1 (Type A), 3.5 mm stereo audio input/remote trigger, 3.5 mm stereo audio output/remote trigger, time code sync terminal.

Additional Digital Features: Content Authenticity Initiative (CAI) 'Content Credentials' secure metadata, sensor-based five-axis image stabilisation giving up to 5.0 stops of correction for camera shake, 'High Resolution' multi-shot, pixel-shift mode (handheld or tripod modes, 48 or 96 megapixels, RAW or JPEG, with 'Motion Artefacts Correction' processing and shutter delay timer), sensor cleaning, 8.0 GB buffer memory, sRGB colour space, five 'Film Style' presets (Standard, Vivid, Natural, Monochrome and Monochrome High Contrast), adjustable 'Film Style' parameters (Contrast, Highlights, Shadows, Saturation and Sharpness), up to six 'Leica Looks' effects (downloadable via the Leica FOTOS app), 'Intelligent Dynamic Range' (iDR) dynamic range expansion processing (Auto, High, Standard, Low, Off), Perspective Control (On/Off, with real-time framing), real-time histogram display, 3x3 guide grid, dual-axis level indicator, highlight warning, noise reduction for JPEGs (Low, Medium, High), long exposure noise reduction (Off/On), intervalometer (up to 9999 frames), six user profiles, four 'Info Profiles', audible signals, 12/30 thumbnail displays, copyright information, adjustable image display time, playback zoom, WiFi (2.4 and 5.0 GHz bands) and Bluetooth 5.0 LE connectivity, Apple MFi certified.

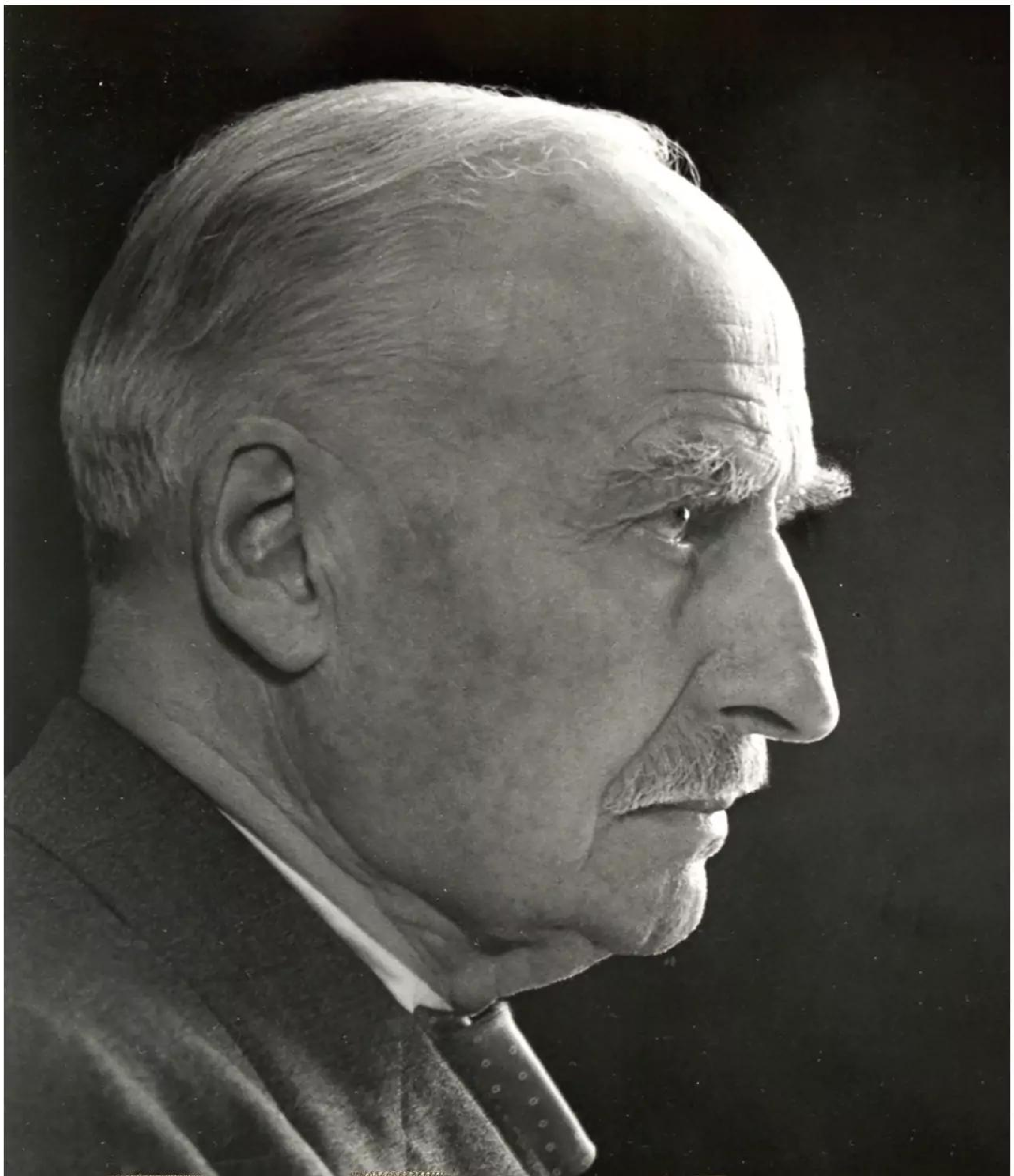
Power: One 7.2 volt, 2200 mAh rechargeable lithium-ion battery pack (BP-SCL6 type). In-camera charging via USB C. Optional HG-SCL7 battery grip provides a second battery pack.

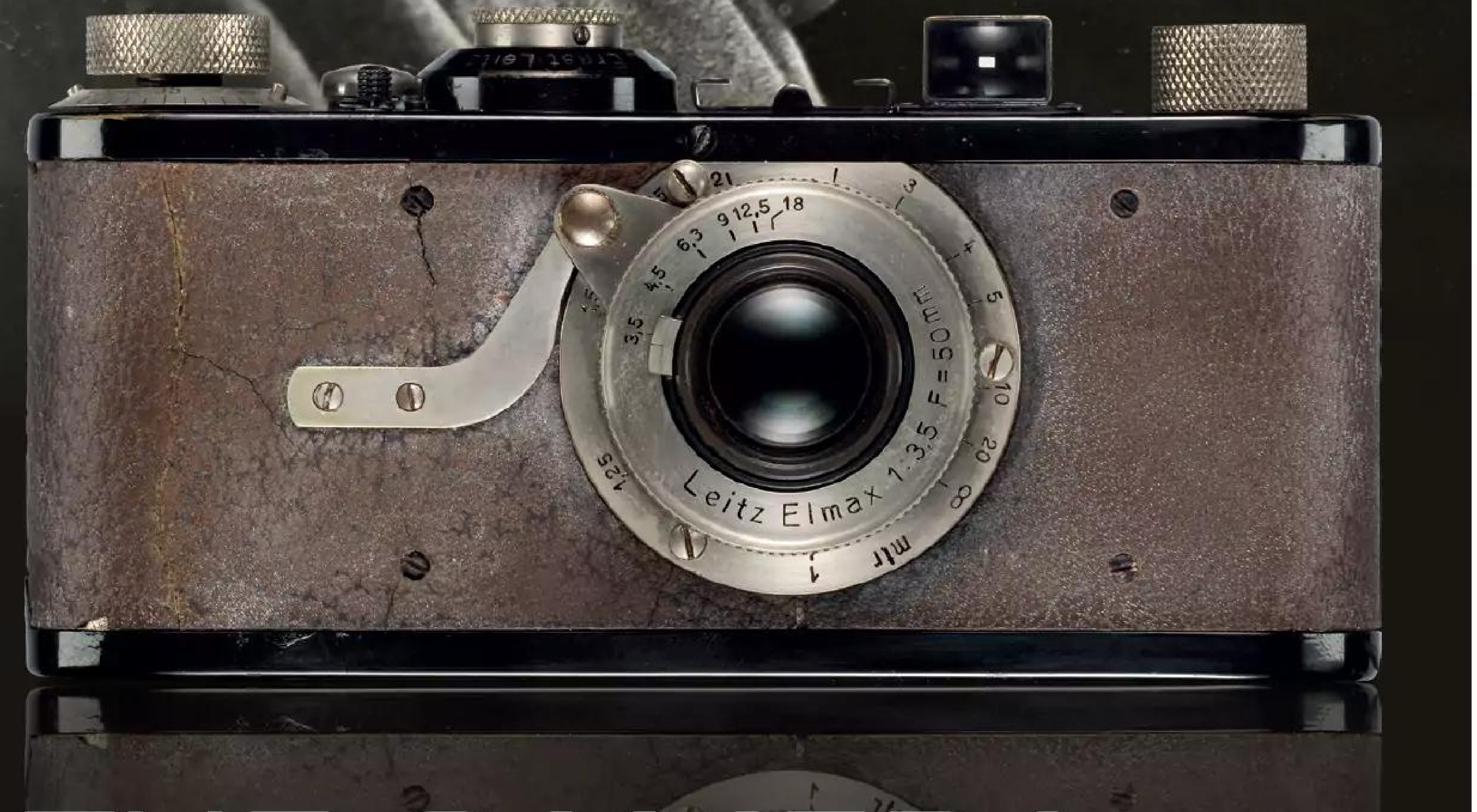
Dimensions (WxHxD): body only = 141.2x108.0x82.7 mm.

Weight: 768 grams (body only without battery pack or memory card)

Price: $8990 body only.

Distributor: Leica Camera Australia Pty Ltd, telephone (03) 9248 4444 or visit information visit https://au.leica-camera.com To purchase online, go to https://leica-store.com.au





THE CAMERA THAT CHANGED THE WORLD

100 YEARS OF LEICA CAMERAS

Photography was revolutionised after the appearance – at the 1925 Leipzig Spring Fair in Germany – of the Leitz Kleinfilmkamera, a.k.a. the first Leica camera to go into commercial production. This small camera was the start of something bigger than its creators could ever have imagined.

Report by **Paul Burrows.**

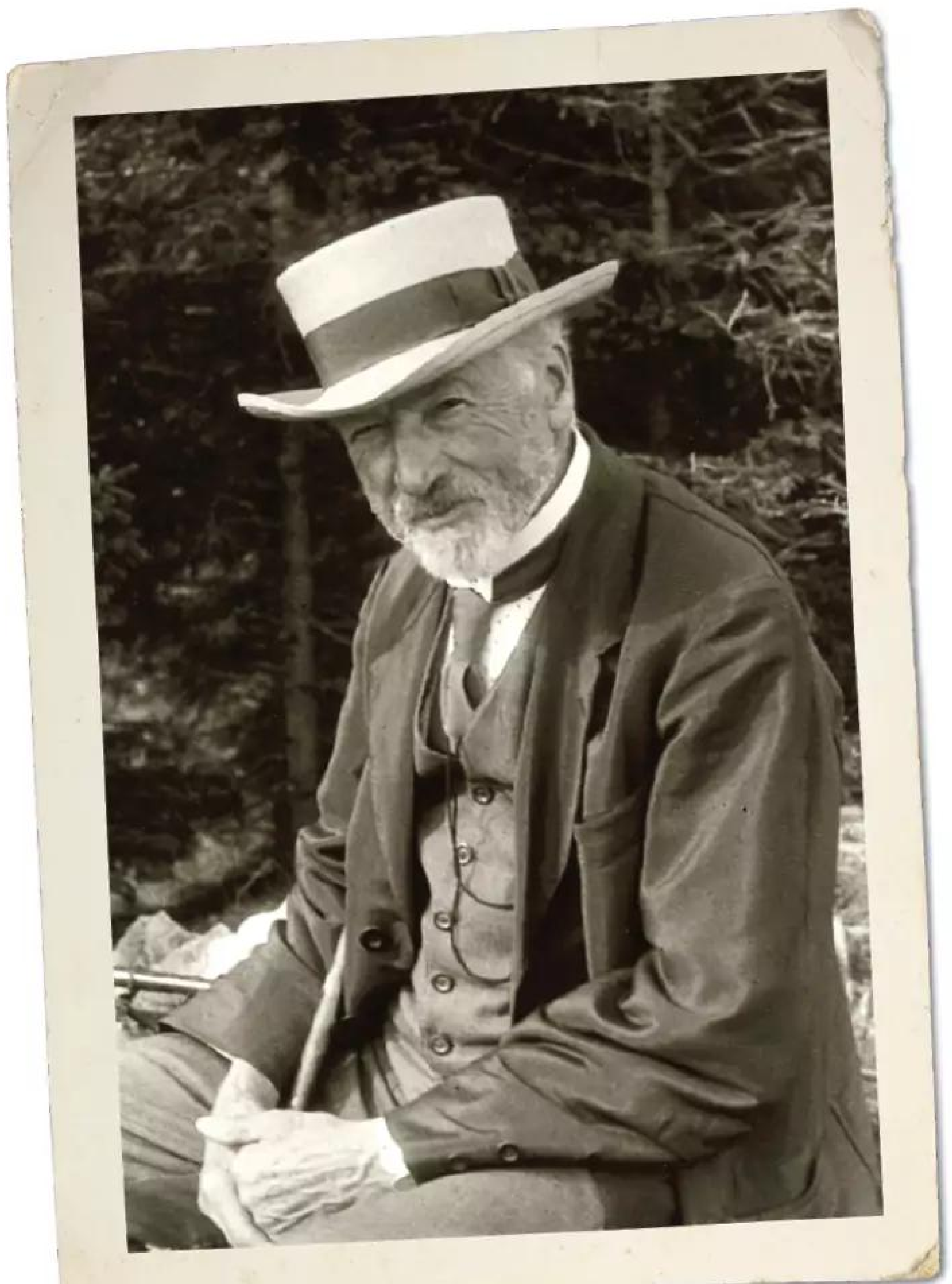
While Kodak's famous box camera made photography much more accessible after the start of the 20th century, it relied on simplicity for its appeal which ultimately imposed some limitations on what could achieved with it. If you wanted something that could do more, then inevitably the available equipment was big, bulky and expensive. However, as has been the case throughout the history of photography, the challenge was always to design smaller and lighter cameras without compromising either capabilities or image quality.

Many at the time took up this challenge, among them a gifted engineer, inventor and keen amateur photographer called Oskar Barnack. Born in 1879 in the eastern German state of Brandenburg, Barnack suffered from acute asthma which limited his ability to carry a heavy wooden camera on a tripod – not to mention a case of glass plates – over any great distances. With cinema also rapidly gaining in popularity, Barnack's first ideas were around adapting movie film – with an 18x24 mm frame – to a compact still camera. However, this frame size was still too small to deliver a sufficiently high quality negative for enlargement so Barnack's

◀

Above: Ernst Leitz II (1871 – 1956) joined the family company in 1906 and famously, in 1924, gave the green light for production of an all-new 35mm camera, designed by Oskar Barnack (1879 – 1936), to commence, introducing the world to Leica.

Below: The first few hundred serial production Leicas in 1925 were fitted with a five-element 50mm f/3.5 lens designed by Max Berek and called the "Elmax" (short for E. Leitz Max).



▲ Ernst Leitz I (1843 – 1920) established his family company in 1869, setting the stage for some of the most important developments in photography.

stroke of genius was turn the movie film on its side and run it though his camera horizontally, at the same time creating a larger 24x36 mm frame (actually originally 24x38 mm). The problem now was to find a lens with a matching imaging circle as what was available was either too small (covering the 18x24mm frame) or too big. Eventually, a dedicated lens was designed by another important player in this story, a physicist and mathematician named Max Berek (1886 – 1949). He determined that the 50mm focal length was best suited to the 24x36mm frame and initially devised a four-element collapsible 50mm f/3.5 optic which was briefly labelled 'Anastigmat'. This was followed by a five-element design called the Elmax – derived from Ernst Leitz Max – and which quite shortly after evolved into the four-element 50mm f/3.5 Elmar, the first of a long line of standard lenses to carry this famous name (over 30 versions, in fact).

First Steps

Barnack and Berek came together at the optical firm of Ernst Leitz Optische Werke, based in the historic German town of Wetzlar, and where they both worked on precision microscopes. Prior to joining Leitz in 1911 (by which time he was 32), Barnack had worked at Carl Zeiss on microscope design while Berek joined the company in 1912 immediately after he had graduated from the University of Berlin. Also a mineralogist, he specifically worked on polarised light microscopy and on developing anti-reflection lens coatings. Barnack was also involved in Leitz's cinema camera project and, specifically, devised a device to check the film speed which, in those days, tended to vary considerably from one batch to the next. This device worked a lot like a small still camera – it had a compact metal body with a tube fitting to take a lens, a single-speed shutter and a knob-type transport for the short length of movie film that was being exposure tested.

By 1914, Barnack had built two prototype cameras – and possibly a third – now with a focal plane shutter, a fixed collapsible lens and a sports-type viewfinder mounted on a cold shoe. Only one of these prototypes survives and is now known as the Ur-Leica... literally meaning *before* Leica. Over the next few years, the prototypes were extensively trialled by both Barnack and Ernst Leitz II who was an enthusiastic supporter of the project. One of the most famous of these photographs is Barnack's shot of the Eisenmarkt square in Wetzlar, a view which is largely unchanged today and you can stand in exactly the same spot from where it was taken which is marked with a commemorative plaque. However, global affairs intervened and it would be over a decade before Barnack's revolutionary camera finally went into production.

> "Few other cameras have had quite such an impact on how photographs are seen and recorded, and there's no doubt Leica greatly contributed to the 35mm format becoming the most successful and popular ever."

To explain, back in 2014 Leica Camera AG celebrated the 100 years anniversary of the Ur-Leica which coincided with the opening of its brand new headquarters back at Wetzlar and appropriately named Leitz Park (since significantly expanded). In 2025, it's the launch of the commercially-ready version – and the first camera to be badged a Leica – that's the subject of the 'Leica 100' centenary.

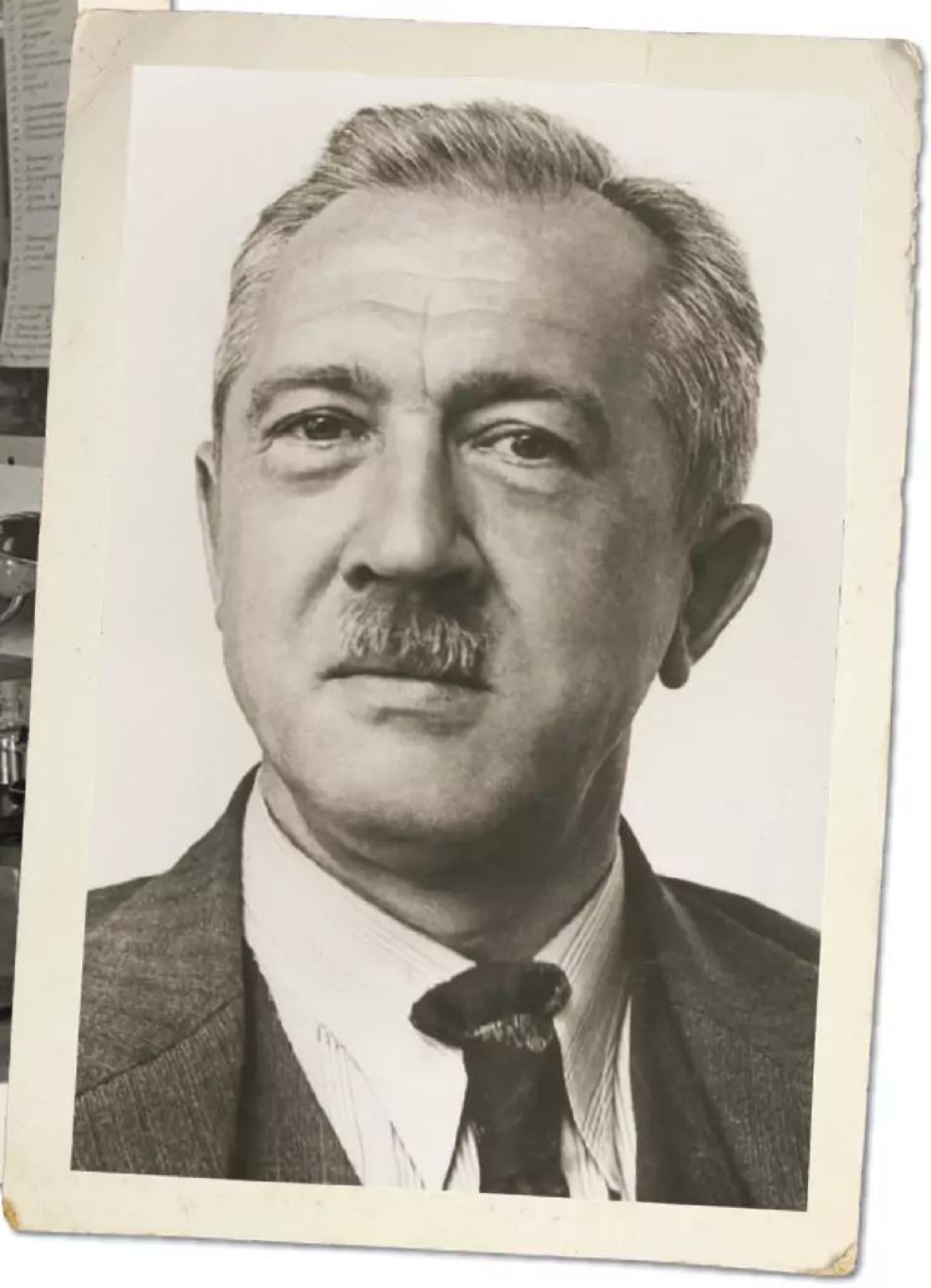
The Big Decision

In the decade from 1914 to 1924, there were various small runs of hand-built prototypes – including the *Null Serie* (O Series) which numbered 25 examples – as Barnack refined his design to arrive at what is known today as the Leica I, but back then it was simply called 'the Leica' (an amalgam of Leitz and camera). Actually, to be absolutely historically correct, the very first cameras were called the Leca, but this was soon changed to avoid confusion with a French-made camera called the L'Éca.

After the first World War, the German economy was also left in ruins and the

◀ The Ernst Leitz Optische Werke factory in the centre of Wetzlar pictured at night in 1920. The building still exists and is today the home of Leica Microsystems (now a separate company to Leica Camera). Photographed in October 2019 with a Leica SL2.

▲ Oskar Barnack at his workbench in the original E. Leitz building in Wetzlar photographed in 1933.



▲ The third key player in the story of the first Leica camera – alongside Ernst Leitz II and Oskar Barnak – is Max Berek (1886 – 1949). A mathematician, physicist and mineralogist, Berek joined the Leitz company straight from university in 1912 and worked there all his life. For much of this time, he was Leitz's chief optical designer.

global depression which followed put severe pressure on manufacturers like Leitz. After his father died in 1920, Ernst Leitz II assumed control of the company and decided that diversification was the key to survival. He really wanted to build Barnack's camera, but not all his senior managers agreed with the idea because it would cost a lot to tool up for production and the unproven 'miniature format' (i.e. 35mm) was considered too much of a risk. A special meeting was called to resolve the matter. After four hours, the two sides were still deadlocked and Ernst Leitz II was forced to make the final decision. As he elected to turn Leitz into a camera maker – and an unknown among well-established names such as Kodak and Zeiss – he could not possibly have envisaged the far-reaching effects of what was a very courageous move.

> "Despite the introduction of digital M models from 2006, Leica never actually stopped making 35mm rangefinder cameras."

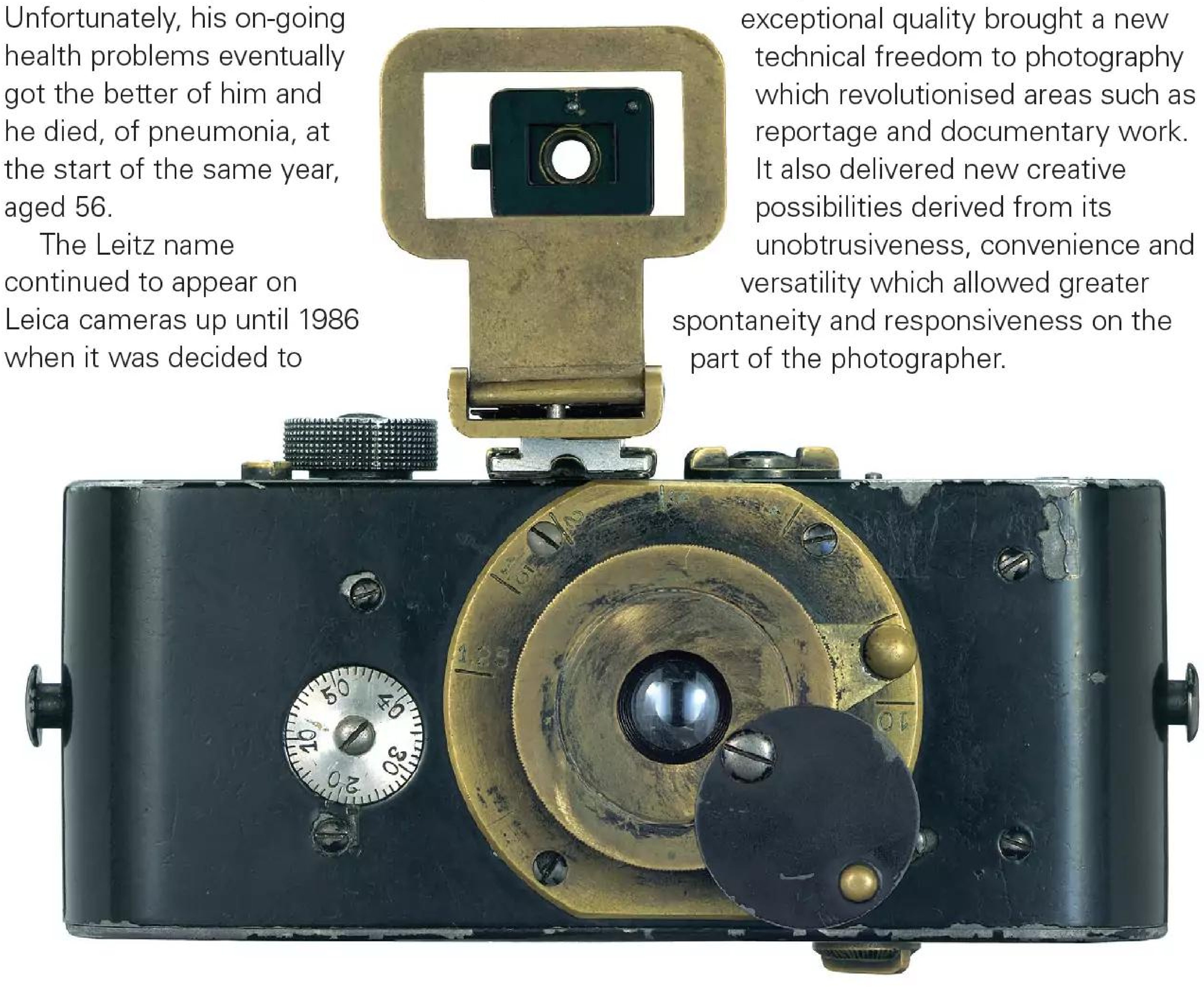
Explaining his decision, he stated, "This small camera is an opportunity to create work for our employees – if it lives up to the promise I see in it – through the years of the Depression and to get them through the difficult times ahead."

The name Leica was adopted at the last minute for the first showing of production models at the 1925 Leipzig Spring Fair. The camera attracted mixed reactions and sales were initially slow, but Leitz had shrewdly kept the production run small (less than 1000 units) so when demand began to grow, it quickly outstripped supply which is always a clever marketing ploy. By 1936, a total of 200,000 Leicas had been built, proving Oskar Barnack's emphasis on optical and mechanical precision had been right. Unfortunately, his on-going health problems eventually got the better of him and he died, of pneumonia, at the start of the same year, aged 56.

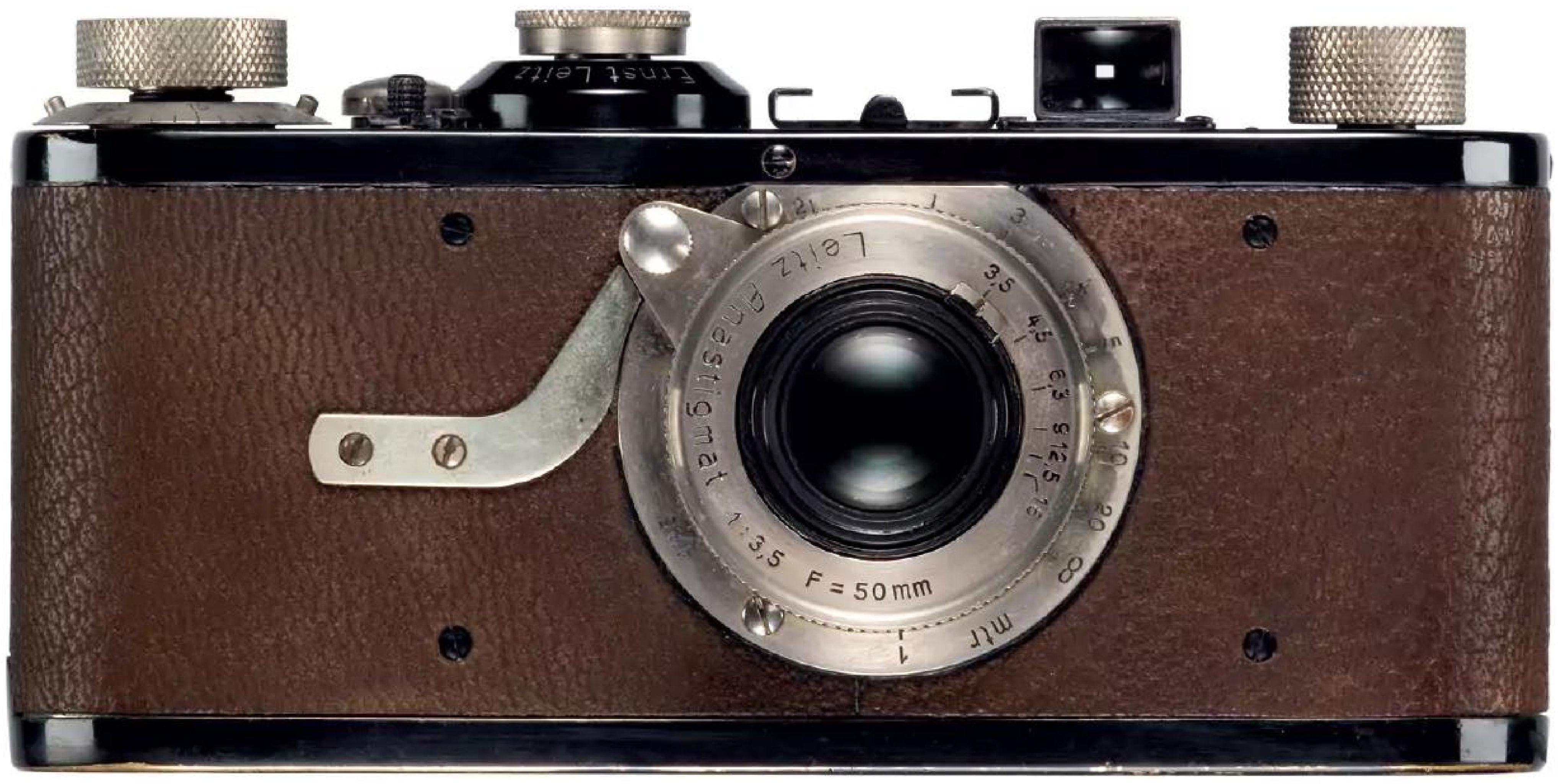
The Leitz name continued to appear on Leica cameras up until 1986 when it was decided to concentrate all the company's photographic activities under the Leica brand. The familiar red dot logo appeared in the mid-1970s and was worded either "Leitz" or "Leitz Wetzlar" up to 1986.

Technical Freedom

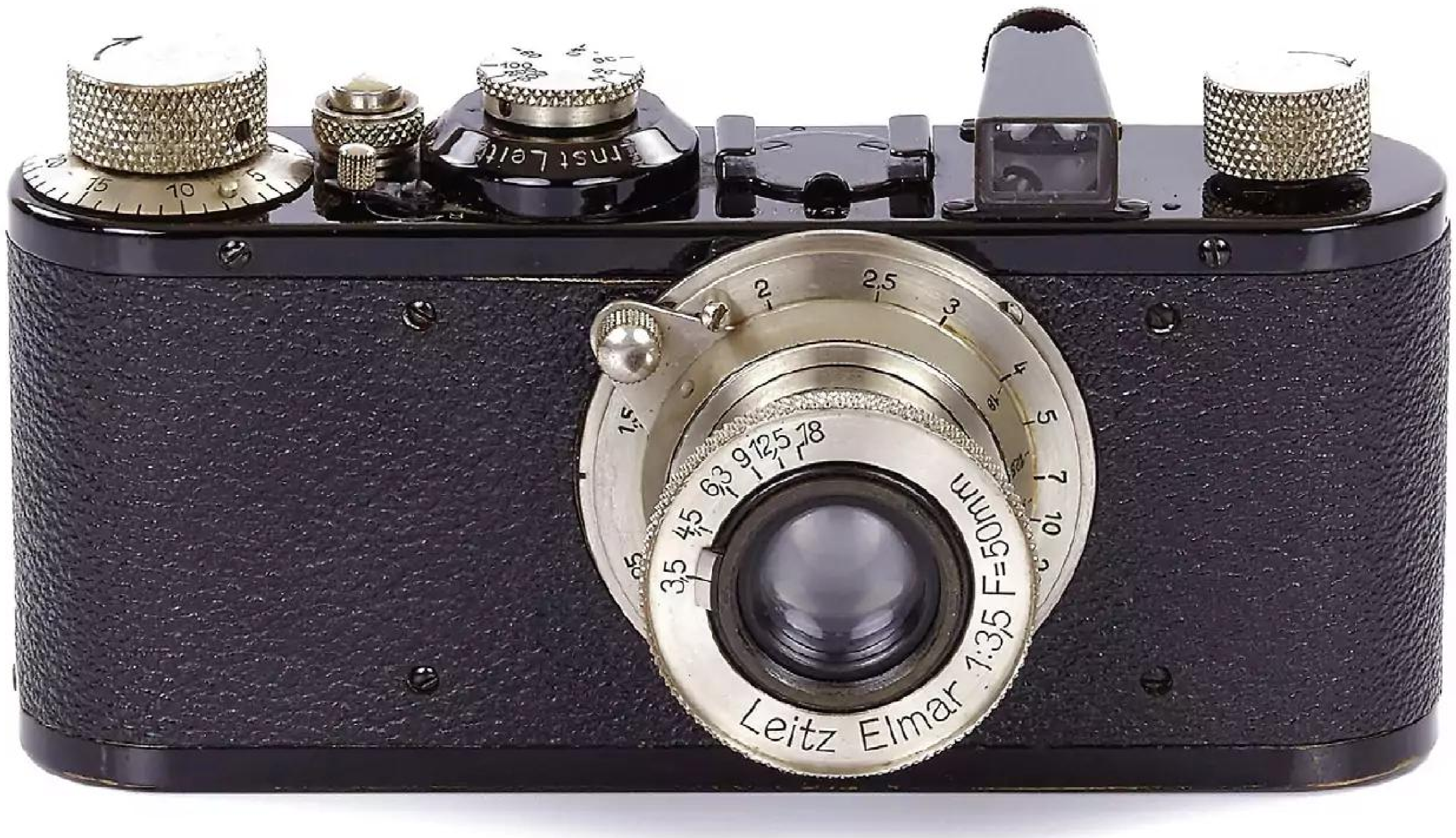
The Leica's compact dimensions combined with its comparative ease of use and exceptional quality brought a new technical freedom to photography which revolutionised areas such as reportage and documentary work. It also delivered new creative possibilities derived from its unobtrusiveness, convenience and versatility which allowed greater spontaneity and responsiveness on the part of the photographer.



▶ Oskar Barnack's 1914 prototype 35mm camera… now known as the Ur-Leica (which translates as before Leica). Before it was given any name, Barnack himself called it his "Liliput camera". It's known that he made two prototypes and possibly three, but only this actual camera survived.



◀ A very early evaluation series of the Leica fitted with Max Berek's four-element 50mm f/3.5 Anastigmat lens.



▲ The Leica I Model C (1930) was the first model with interchangeable lens, but early on the screwthread mount was non-standard and individual lenses were matched to a particular body. Standardisation of the L39 – 39 millimetres diameter – mount came in 1931 and many early examples were subsequently converted.

Few other cameras have had quite such an impact on how photographs are seen and recorded, and there's no doubt Leica greatly contributed to the 35mm format becoming the most successful and popular ever.

A string of legendary names in photography adopted the Leica camera among them Alfred Eisenstaedt, Robert Capa, André Kertész, Henri Cartier-Bresson, Robert Frank, William Klein, Werner Bischof, W. Eugene Smith and Ernst Haas. As a result of their efforts the Leica rangefinder camera is inextricably linked with much of the visual documentation of world events since the early 1930s.

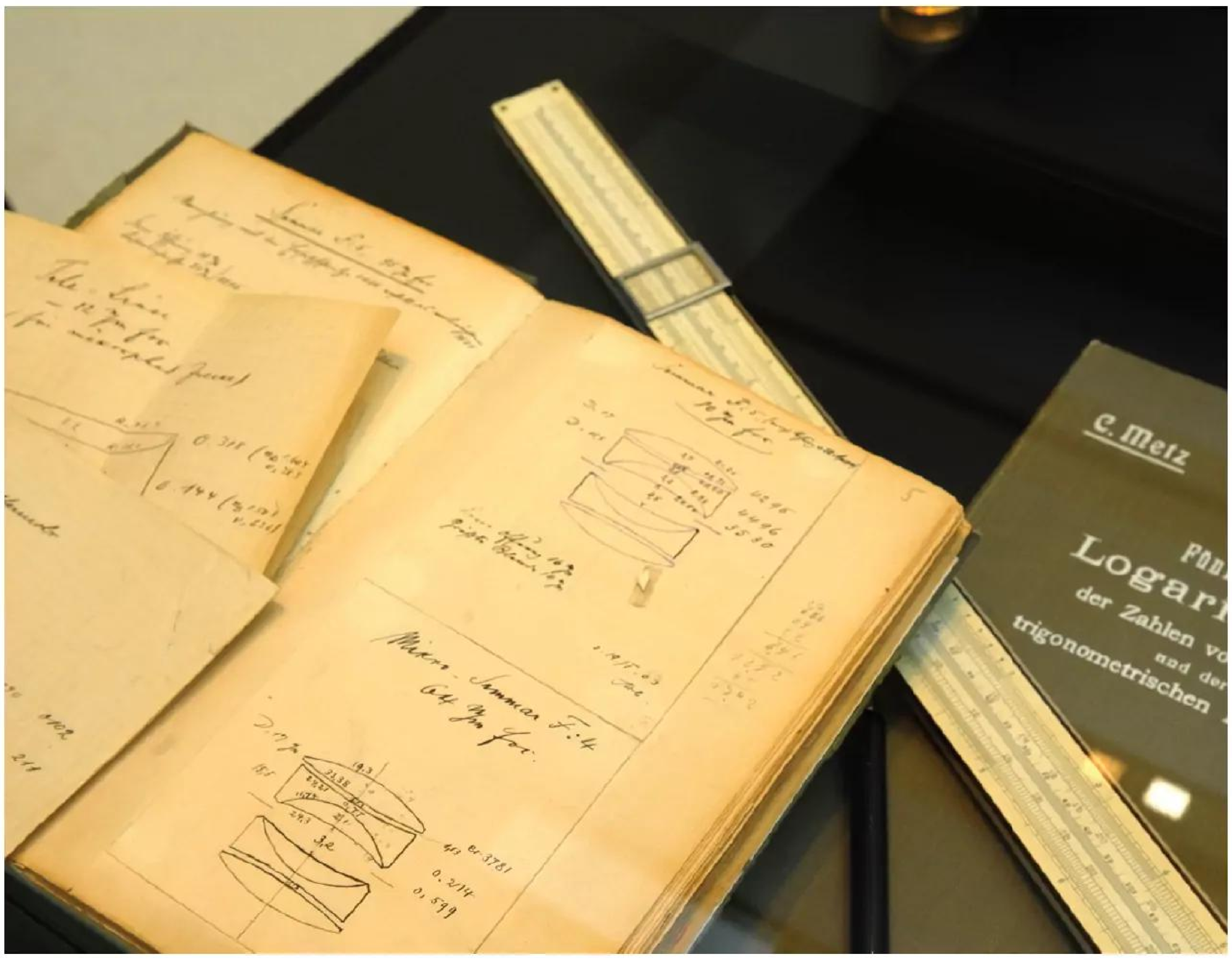
Of course, it wasn't just the small size which had appeal, but also the features and specifications. The Leica I – as it became known – from 1925 had a fixed 50mm f3.5 Elmar lens with a slip-on rangefinder, and its focal plane shutter operated over a speed range of 1/20 to 1/500 second (plus it had a 'T' setting). Lens interchangeability was introduced in 1930 with the Leica I Model C, although the L39 (39 millimetres diameter) screw mount wasn't standardised until 1931 and, in 1932, the Leica II with a built-in coupled rangefinder was introduced. The Leica III with a shutter speed range now extending down to one second followed in 1933 and the IIIa, with a top speed of 1/1000 second, appeared in 1935. Subsequent developments included flash synchronisation, a self-timer and a brightline viewfinder with automatic parallax correction.

By 1946, production of Leica cameras reached 400,000 units, but in the immediate post-war years, there were problems with the supply of raw materials and the ongoing threat of a Soviet invasion. Ernst Leitz II elected to move some production to a facility in France and, later, in the early 1950s, an operation was established in Canada which was seen as a safe haven in the likelihood of another world war.

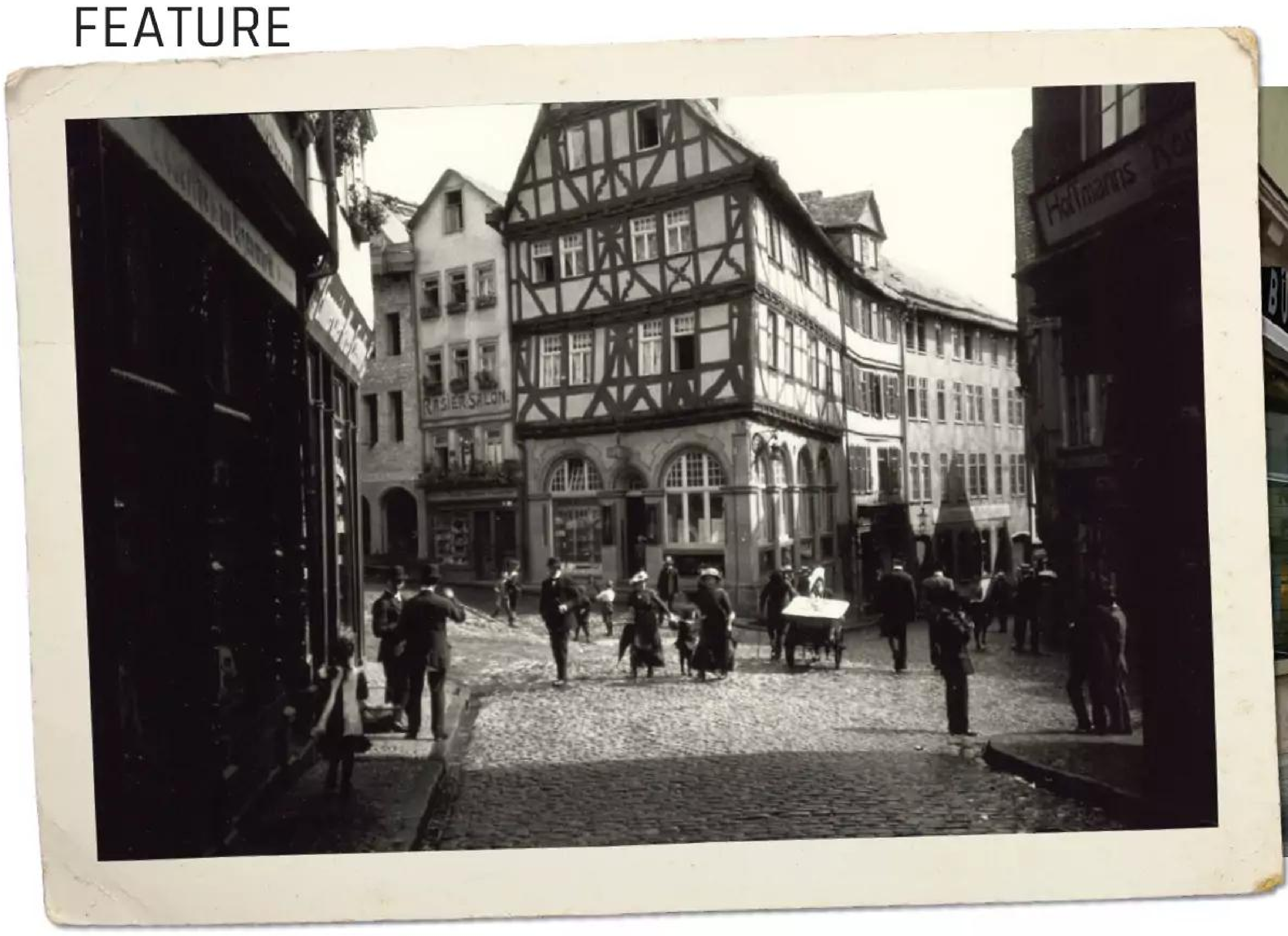
Bigger Views

At the end of second World War, work began on a major update of the Leica 35mm rangefinder camera to make it even more convenient and easier to use. Competitors like Zeiss with the Contax II were snapping at its heels and so Leica wanted another 'big bang' like its original Model I. It's arguable that this next generation model was almost as significant as the original Leica and similarly had a far-reaching impact on photographic practice, especially in the areas of documentary, street and photojournalism.

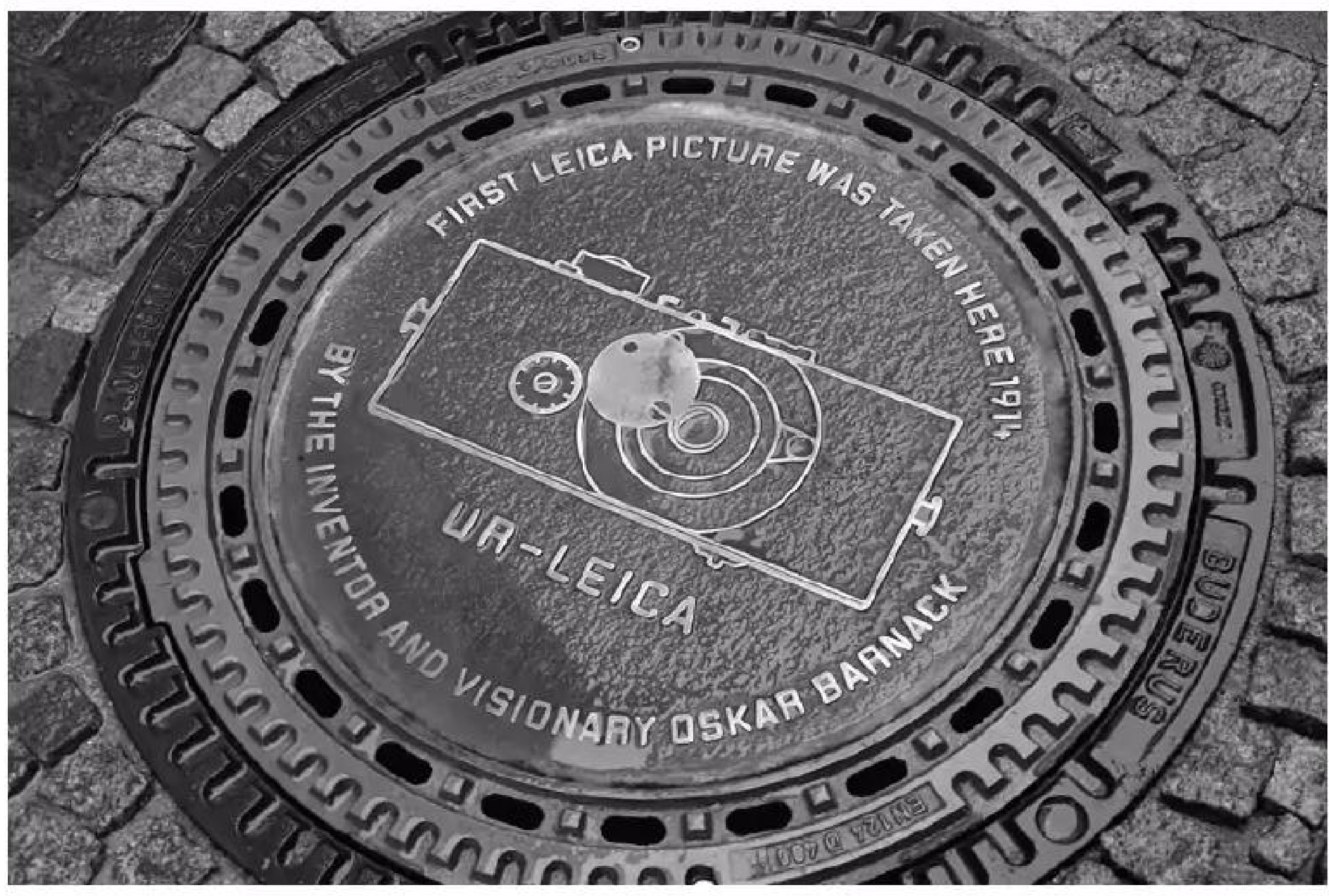
Launched in 1954, the M3 featured a combined viewfinder and coupled rangefinder – as first seen in the pre-war Contax II – but which also incorporated the projection of brightline image area frames for different lens focal lengths and, even more conveniently, also provided automatic parallax correction. Furthermore,



▶ One of Max Berek's lens design notebooks. The scheme of the Leitz 64mm f/4.0 Micro Summar is drawn at the bottom of this page and this lens was manufactured with brass barrel tubes.



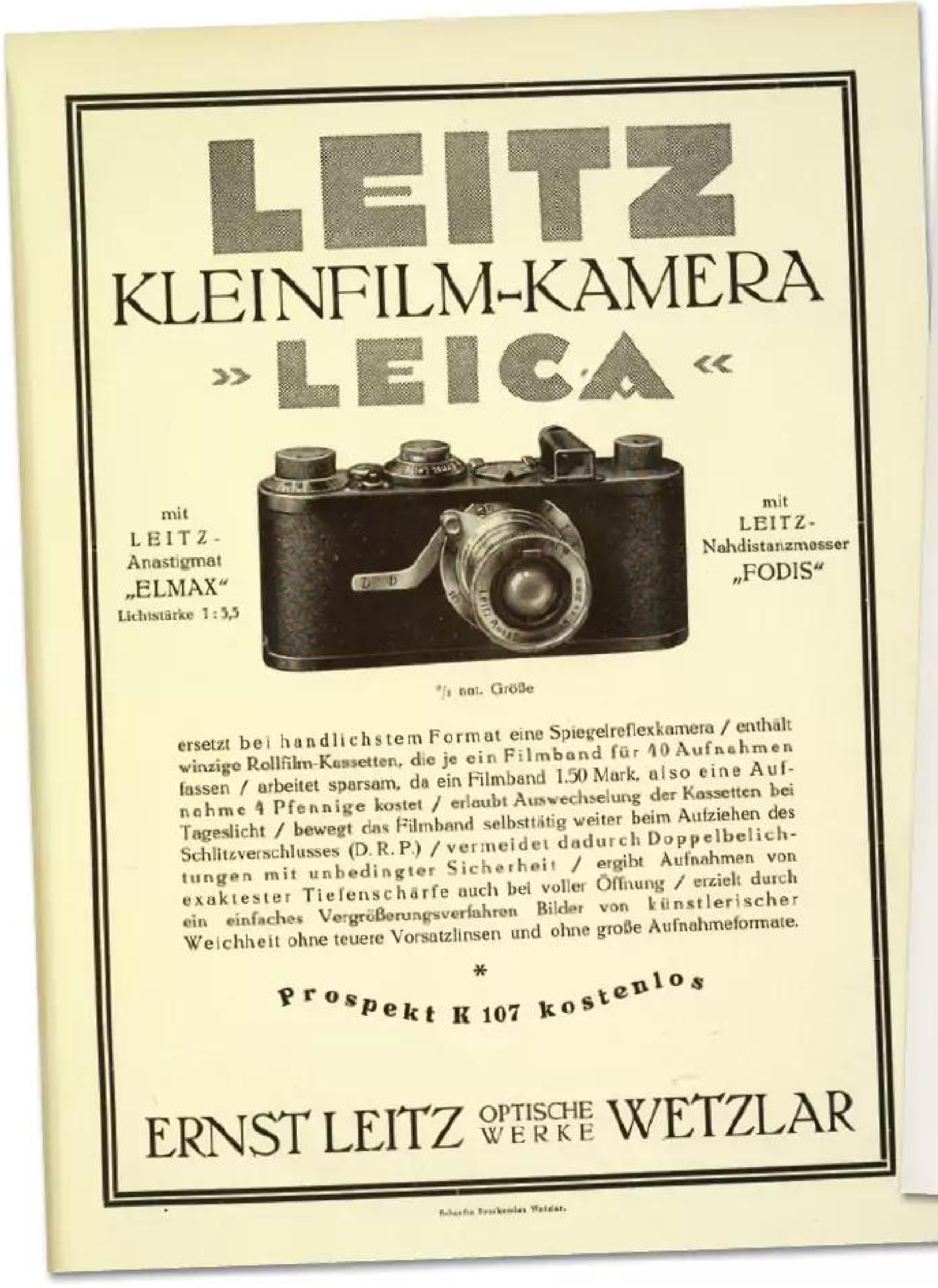
▲The first picture taken by Oskar Barnack with the Ur-Leica in 1914 (left) and the same scene photographed in October 2019 with a Leica SL2. The location is the Eisenmarkt square in Wetzlar's *altstadt* (old town) area. You can stand in exactly the same spot as Barnack did when he took the famous Eisenmarkt photograph… as countless thousands of Leica devotees have done over the last few decades.


FIRST LEICA PICTURE WAS TAKEN HERE 1914
UR-LEICA
BY THE INVENTOR AND VISIONARY OSKAR BARNACK

these frames were engaged automatically when the lens was attached (although the 50mm frame was fixed). The 'M' stood for *messsucher* (yes, there are three esses), the German word for a rangefinder viewfinder, and the number '3' referred to the number of frames provided for different focal length lenses. Also notable was the finder's brightness and its large, 0.91x magnification. It was the work of Ludwig Leitz – one of Ernst Leitz II's three sons – and the company's then chief engineer, Wilhelm 'Willi' Stein.

Given the lens was communicating with the camera body – albeit in a very basic mechanical way – the old screwthread mount gave way to a quick and easy bayonet fitting. The M3 also offered the convenience of a single dial for setting all shutter speeds (the previous generation cameras had separate controls for the fast and slow setting) and film advance was now via a rapid-wind lever (initially double-stroke and later clutchless for multi-stroke). While the film was still loaded through the base – as it is on today's M Series film cameras – it was made significantly more convenient by the provision of an opening back plate. Everything about the M3 was an improvement on the previous-generation Leica III (which, incidentally, remained in production until the end of the 1950s) and the same configuration is still used in Leica's current film cameras while the viewfinder and the basic control arrangement have been carried over into the digital models.

▼Two very different styles of Leitz advertising from 1925 for its new *Kleinfilmcamera*… compact film camera.



LEITZ

KLEINFILM-KAMERA

»LEICA«

mit
LEITZ-
Anastigmat
„ELMAX"
Lichtstärke 1:3,5

mit
LEITZ-
Nahdistanzmesser
„FODIS"

4/5 nat. Größe

ersetzt bei handlichstem Format eine Spiegelreflexkamera / enthält winzige Rollfilm-Kassetten, die je ein Filmband für 40 Aufnahmen fassen / arbeitet sparsam, da ein Filmband 1.50 Mark, also eine Aufnahme 4 Pfennige kostet / erlaubt Auswechselung der Kassetten bei Tageslicht / bewegt das Filmband selbsttätig weiter beim Aufziehen des Schlitzverschlusses (D.R.P.) / vermeidet dadurch Doppelbelichtungen mit unbedingter Sicherheit / ergibt Aufnahmen von exaktester Tiefenschärfe auch bei voller Öffnung / erzielt durch ein einfaches Vergrößerungsverfahren Bilder von künstlerischer Weichheit ohne teuere Vorsatzlinsen und ohne große Aufnahmeformate.

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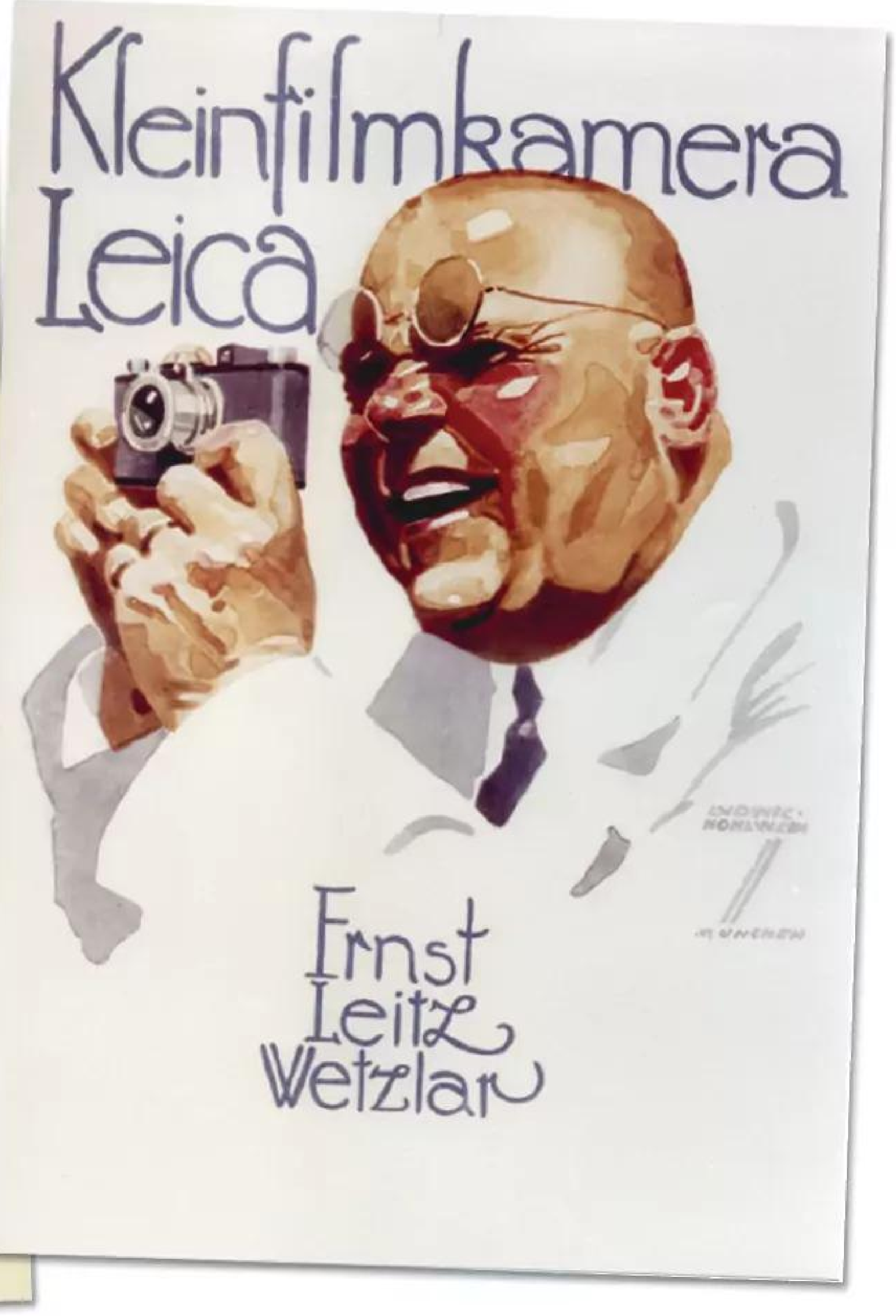
Prospekt K 107 kostenlos

ERNST LEITZ OPTISCHE WERKE WETZLAR



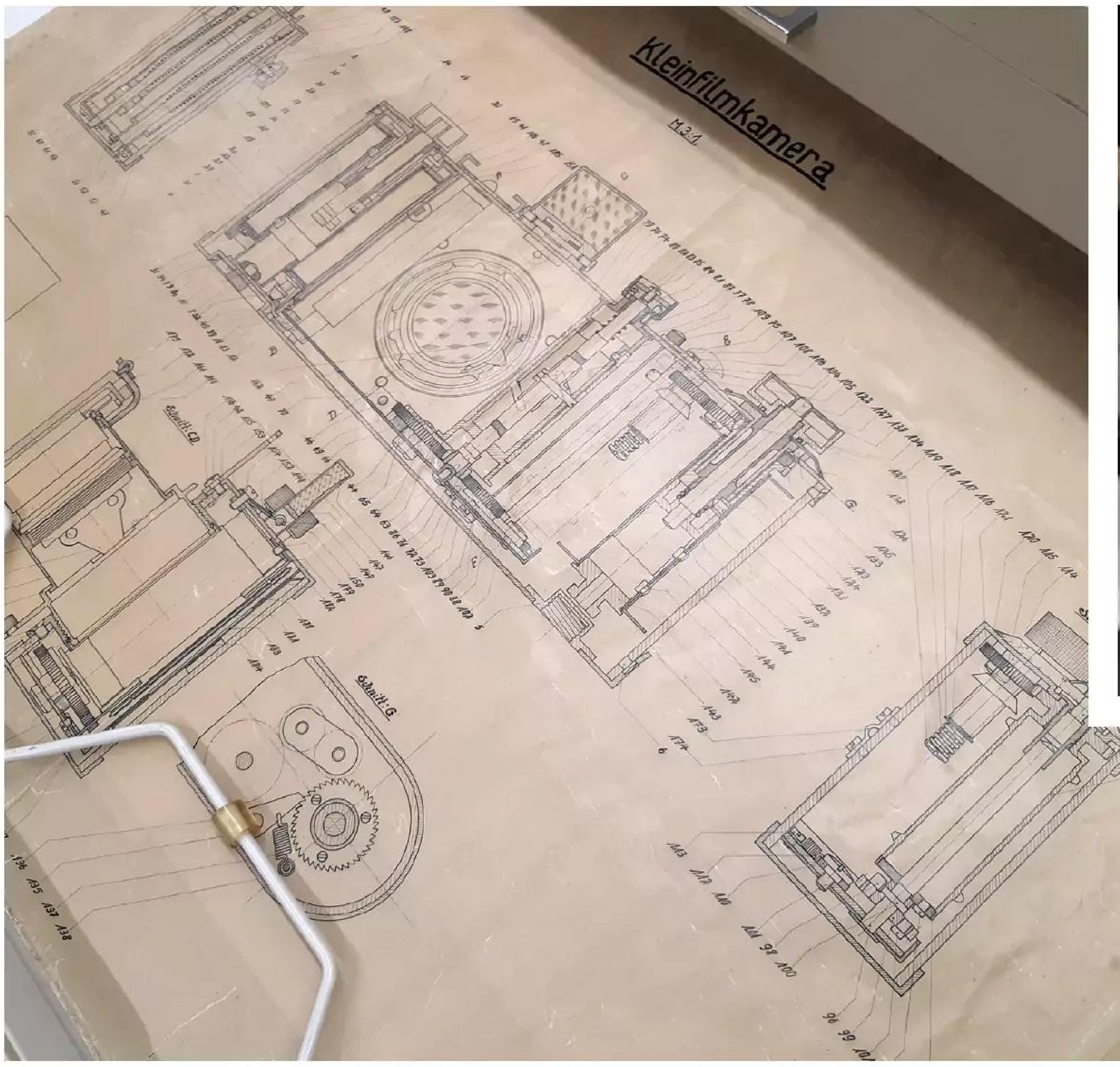
Furthermore, the M3 largely set the template for all interchangeable lens 35mm rangefinder cameras subsequently, including the Minolta CLE (which, of course, was Leica-derived), the Cosina-made Voigtländer Bessa models, the Konica Hexar RF and, ironically, the Zeiss Ikon ZM (also built by Cosina).

The M3 was followed by the M2 in 1958 and this model had a wider 0.72x magnification finder with brightline frames for the 35mm, 50mm and 90mm focal lengths. Consequently, the M1 was popular with press photographers and photojournalists who tended to shoot with wider angle lenses. There was, briefly, an M1 (introduced in 1959) which is why Olympus had to switch to the OM-1 designation for its famous 35mm SLR. This was a 'budget' model and lacked both a rangefinder and the auto image frame switching.

Saved From Extinction

With a question mark over the future of the 35mm rangefinder camera given the rising popularity of SLRs in the format, the

> For the time being at least, the famous Leica optical *messsucher* remains and through which countless photographers have viewed the world to record events both big and small."



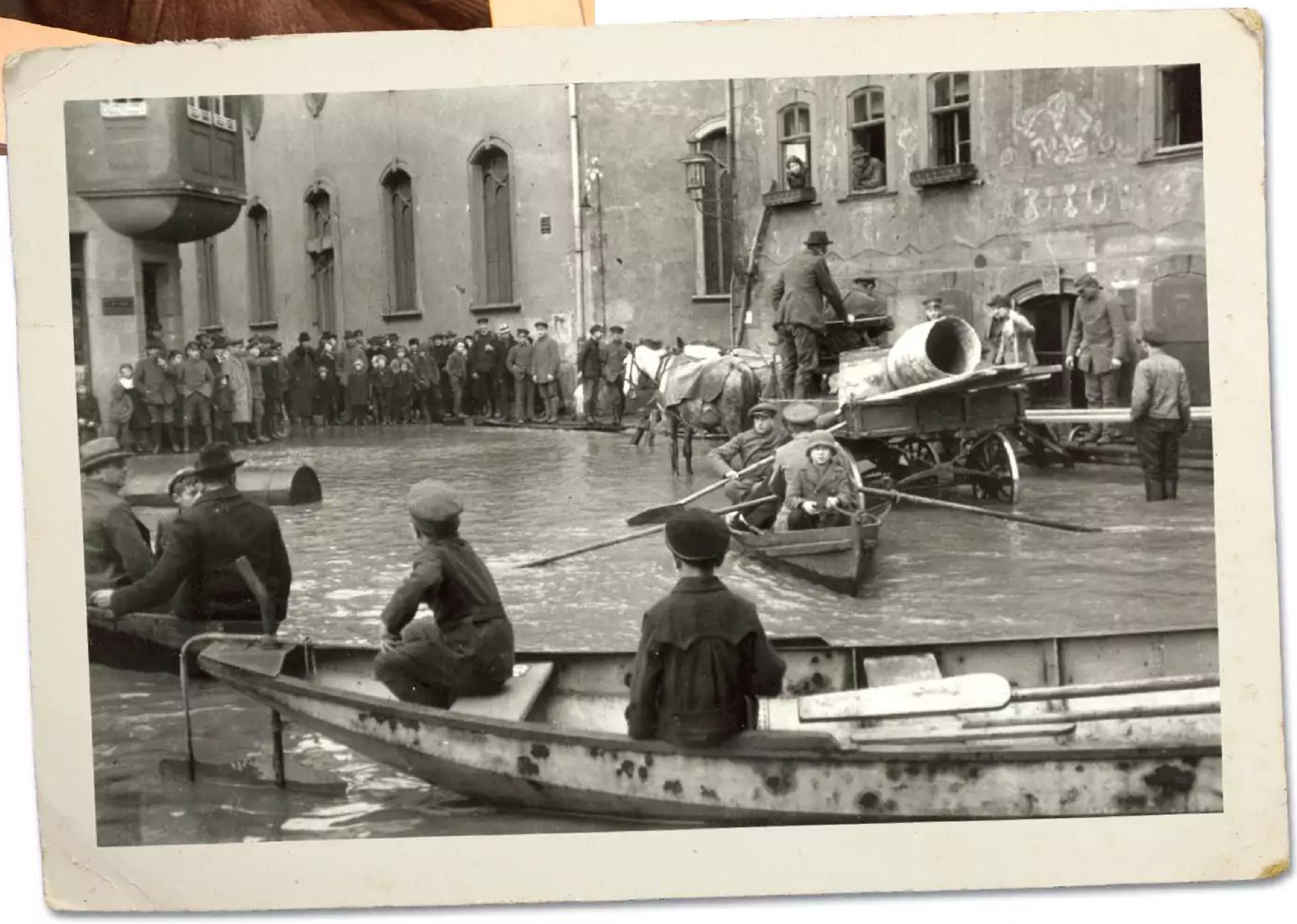
▲The Leica III used by American press photographer Sam Shere to take the famous images of *The Hindenburg* airship exploding as it docked at Lakenhurst, New Jersey, on 6 May 1937. This particular camera was built in 1935. As it happens, a burnt Leica camera was recovered from the wreckage and is also in Leica's archive collection.

◀ **Above:** Technical drawings for a 'Kleinfilmkamera' – compact film camera - and which show a screw mount 35mm model dated 1929. This became the first version of the Leica I with interchangeable lenses, launched in 1930.

◀ **Below:** Leica rangefinder camera users included many of the 20th century's great names in photography. Here is a black-paint M3 that belonged to Henri Cartier-Bresson (1908 – 2004) from 1960 to 1968, after which he gifted it to fellow Magnum member, the Austrian photographer Inge Morath (1923 – 2002). It sold at auction in 2014 for 52,800 Euros (around A$94,500 at current exchange rates).

M4 – introduced in 1967 – represented a full makeover of the M3/M2 in terms of ergonomics and operational convenience. So, for example, the old and cumbersome film rewind knob was replaced by a fold-out crank handle. The viewfinder was given a full set of frames for 35mm, 50mm, 90mm and 135mm.

Introduced in 1971, the M5 gained TTL spot metering which used a measuring cell on a swing-down arm that retracted at the moment of exposure. However, this also added bulk and also made the



▶The devastating Wetzlar floods of July 1920 photographed by Oskar Barnack with an Ur-Leica prototype. He also shot movie footage of the disaster.

SUMMICRON
LEITZ WETZLAR

An extensive redesign of the Leica rangefinder camera in the early 1950s gave birth to the legendary M series. Launched in 1954, the M3 featured a combined viewfinder and coupled rangefinder, film advance via a lever and a single dial for setting all shutter speeds. The viewfinder also had brightline image frames with automatic parallax correction.

LEICAFLEX
Leitz WETZLAR

Thanks to the likes of Nikon, Minolta and Pentax; in the early 1960s the SLR started to like the future of 35mm photography so Leica introduced its first model in 1964.

LEICA
R8
SUMMILUX-R 1:1.4/50

The R8 (1996) and R9 (2002) were all Leica's own work and featured a pretty dramatic-looking design. Although Leica had actually developed a workable AF system for 35mm SLRs – the technology was sold to Minolta – it stuck with manual focusing throughout, preferring not to potentially compromise the optical performance of its brilliant R mount lenses.

The M5 added TTL spot metering with the sensor on a swing-down arm that flipped up at the moment of exposure. The camera's increased size worked against it and poor sales almost convinced Leica to abandon 35mm RF cameras altogether.

LEICA
R3MOT ELECTRONIC
SUMMICRON-R 1:2/50
LEITZ CANADA
MOTOR WINDER R3

Leica started the first of its collaborations with Japanese camera makers with the R3 launched in 1976 and which used metering and exposure control electronics made by Minolta. The R3 MOT ELECTRONIC version was introduced in 1978 with an autowinder capable of 2.0 fps.

LEICA M6
LEICA M6

Considered by many to be the finest M series camera, the M6 was first introduced in 1984, discontinued in 1998 and reintroduced in 2022 (right) with modifications to its metering and physical construction.

▲ Leica Camera's Wetzlar headquarters at Leitz Park which is an extensive technology complex completed in 2014 and includes a number of other optical companies plus there's a Leica-themed hotel and a wildlife sanctuary. Photographed in June 2018 with a Leica Q.

M5 incompatible with certain wide-angle lenses so this model was not well received and production ended prematurely in 1974. Following the commercial failure of the M5 and the future of 35mm cameras looking more like an SLR, Leica seriously considered ending its M line, but was convinced by its Canadian operation – which made M mount lenses – to move production to this country. Subsequently, the M4 was revived and two versions – the M4.2 (1976) and the M4-P (1980) – were built in Canada. Both were reasonably successful so camera production returned to Wetzlar for a last run of M4s before the original M6 was introduced in 1984. Thanks to another decade of progress, Leica was able to incorporate TTL metering into what was essentially an updated M4-P without compromising its compact proportions. Additionally, this was a more conventional centre-weighted averaging system, but with measurements made off the shutter curtain which was painted with a large white dot to achieve the bias. Additionally, the number of viewfinder frames is increased with pairs for 28mm/90mm, 35mm/135mm and 50mm/70mm. First time around, the M6 was the second best-selling Leica M camera – there were M6TTL and M6 Classic versions along the way – and a total of 180,000 units were made by the time production ended in 1998. Then, 24 years later in 2022, the M6 was revived albeit with an upgraded construction and revisions to the metering plus, notably, a return to the 'Leitz' red dot logo.

> “Even the most contemporary of Leica cameras are still distinctly Leica in their character.”

In reality, despite the introduction of digital M models from 2006, Leica never actually stopped making 35mm RF cameras, and the MP – which was introduced in 2003 – and the M-A (from 2014) are still available today. The M7 – which introduced aperture-priority auto exposure control to the M system – was built from 2002 to 2008 and was essentially the stepping stone to the digital line which commenced with the M8. This was a tentative start with an 'APS-H' sized CCD sensor and, like the M5, not greatly loved when it was launched, but over time has been more widely appreciated as, at its heart, it's still a classic Leica rangefinder camera. The M9 (2009) moved to a full frame CMOS sensor – at a time when these were still rare in any category of digital camera – and with the subsequent generations of M10 and M11 models Leica has worked at providing more digital-era conveniences while still preserving the essential traditional elements of an M series model. For the time being at least, the famous Leica optical *messsucher* remains and through which countless photographers have viewed the world to record events both big and small to make news or to make art.

Staying In Character

Of course, there have been many other series of Leica cameras; the 35mm SLRs from the original 1964 Leicaflex to the 2002 R9, fixed-lens compacts both film and digital, the early Digilux digital cameras produced in conjunction with first Fujifilm and then Panasonic (this relationship ongoing), the digital medium format S line SLRs, the Sofort instant cameras, and the SL range of full frame mirrorless models… only the second manufacturer to adopt this configuration after Sony.

Leica itself has been through a few ups and downs over its long history, but today is stronger than it's ever been with operations also making luxury watches and cine lenses, collaborations with smartphone companies and involvement in high-end home cinema systems.

The legacy informing all of this goes all the way back to Oskar Barnack's unyielding commitment to pursuing quality, both mechanical and optical, without compromises. In terms of new technologies, Leica may well have erred on the conservative side, but more often than not this was because doing things the traditional way was considered better, particularly in terms of performance and reliability.

Today's market demands some element of competitiveness which Leica achieves partly by still doing things uniquely its own way and partly through strategic partnerships, most notably its long-term technical tie-up with Panasonic. Consequently, even the most contemporary of Leica cameras are still distinctly Leica in their character and owning one makes you a part – however small – of the most storied history in photography.

REPORT BY **PAUL BURROWS**

FUJIFILM
X-E5

▲ Fujifilm's next-gen X-E series mirrorless camera gets a smart makeover and a very big boost in its capabilities. New XF 23mm f/2.8 X mount 'pancake' prime lens is designed to make the X-E5 an appealing alternative to the fixed-lens X100VI.

A CLASS ABOVE

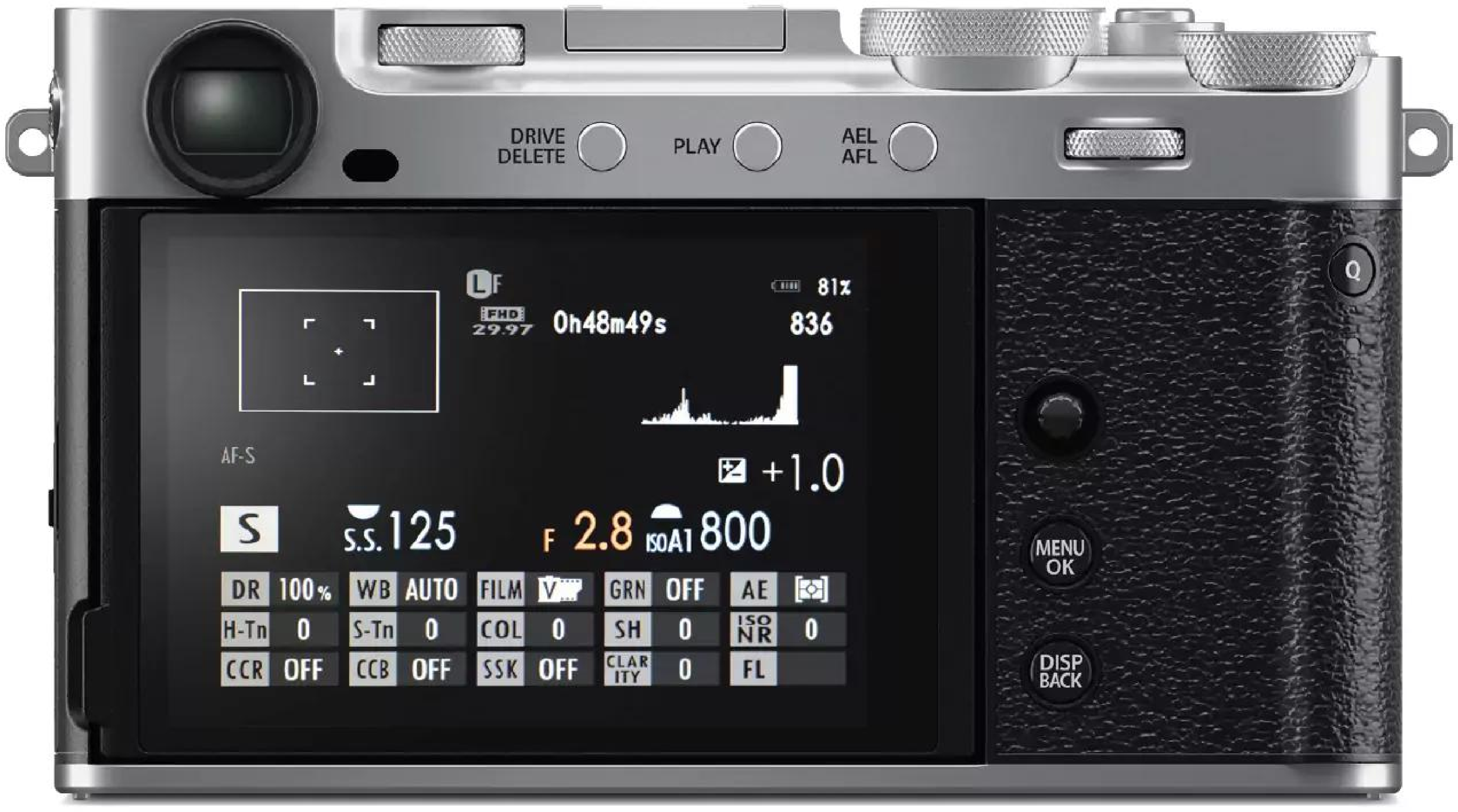
This could well be the 40 megapixels X mount camera body you've been waiting for. It's smaller than the X-T50 or X-T5 and, unlike the X-M5, it has an EVF. On balance the X-E5 is essentially an X100VI with interchangeable lenses (it even looks very similar)… so it ticks a whole lot of boxes.

While they were always capable cameras, you got the impression that Fujifilm's X-E series bodies were the poor cousins to the X-T and X-H lines and certainly the X-Pro models. This all changes with the X-E5 which not only steps up to the top spec internally – i.e. its sensor and processor – but is very much more upmarket externally. The styling is much sharper too – literally – riffing on the classic rangefinder camera theme to the extent that there's a similarity in looks to Leica Q models and, perhaps more significantly, to Fujifilm's own X100 cult classics. This is deliberate, and it means that if you're considering the X100VI you now just have to put the X-E5 in the mix too. True, it doesn't have the unique hybrid optical/electronic viewfinder, but it does have lens interchangeability and that's a very big plus for many. It's no coincidence that Fujifilm has also introduced a 23mm f/2.8 X mount 'pancake' prime lens which looks very much like the fixed version on the X100VI and so, thus fitted to the X-E5, you have virtually the same set-up, but obviously with the potential to use longer focal lengths without relying on a crop (and, of course, wider focal lengths too).

With its aluminium top and bottom covers – the former machined from a solid lump of metal as is now A Thing in camera design – the X-E5 is much weightier than its predecessor and, in fact, has a similar heft to a Q3. Plus there are nice classy touches such as a physical control layout that's now more X100VI than X-E4. Not surprisingly, the X-E5 is also significantly pricier than previously, but as it's essentially a marriage of the X-T50 and the X100VI, you're getting a whole lot more for you money… even with the superior build quality alone. With its elevation in status, the X-E5 also widens its appeal and is now definitely an enthusiast-level mirrorless camera – rather than entry-level – so you can think about buying it as a serious alternative to the X-T5 rather than because you just couldn't afford the SLR-style model.

The combination of the 40.2 megapixels

'X-Trans CMOS 5 HR' sensor and the latest-generation 'X Processor 5' engine is now well-proven across the current X mount line-up in the likes of the X-T5, X-T50 and X-H2 as well as in the X100VI compact; and it brings all the same performance and speed benefits to the rangefinder-style X-E5. These include subject-recognition autofocusing and tracking, in-body image stabilisation (IBIS) and video recording at up to 6.2K and 25/30 fps (albeit with a crop). In terms of the key specs, the X-E5 is closest to the X-T50 so things such as the sensitivity range, shooting speeds and video bit rates are the same (go to the Making Movies panel for a full round-up of the camera's video capabilities).



▲ Rear panel control layout keeps it simple. Monitor-based 'Info Display' is comprehensive, and includes a real-time histogram and an AF point/zone map.

SENSOR AND SENSITIVITY

In addition to the 'X-Trans' six-by-six colour filter array, the X-E5's sensor also has 'dual conversion gain' output circuits which are designed to enhance the high ISO performance. The dual gain arrangement provides two base ISO settings – in this case at ISO 125 and 500 for still photography – with the higher-gain (or sensitivity) circuit operating from ISO 500 and above. This means that there's effectively a two-stop reduction in noise levels than would otherwise be the case, and a subsequent increase in the dynamic range. The outcome with JPEG capture is that less aggressive noise reduction processing is required at the higher ISO settings to the benefit of both the sharpness and the colour saturation. The sensor has a native sensitivity range equivalent to ISO 125 to 12,800 with extensions down to ISO 64 and up to 51,200.

Like all the 40.2 MP X mount cameras, the X-E5 also adds 10-bit HEIF capture which delivers high-definition files, but which are no bigger in size than 8-bit JPEGs. Both HEIFs and JPEGs are captured at either Fine or Normal compression levels and at three image sizes plus, of course, there's the option of RAW+JPEG or RAW+HEIF recording. The maximum image size for stills is 7728x5152 pixels and there's a choice of five aspect ratios – namely 3:2, 16:9, 1:1, 4:3 and 5:4. In-camera conversion is available to turn the HEIF files into JPEGs or into either 8-bit or 16-bit TIFFs. Additionally, RAW files can be converted into either JPEGs or HEIFs. RAW files are captured with 14-bit RGB colour, with the choice of either lossy or lossless compression, or as uncompressed files.

The IBIS operates over five axes of movement and provides up to seven stops of correction for camera shake at the centre of the frame and up to six stops at the edges. As with the X-T50, sensor shifting isn't taken any further so there's no pixel-shifting, multi-shot high-res capture mode as there is with the X-T5, but you do get in-camera panorama stitching with the largest file size being 9600x2160 pixels and the option of either horizontal or vertical panning.

Continuous shooting at 20 fps is possible when using the sensor shutter, but it comes with a 1.29x crop which obviously compromises the wideness of your wide-angle lenses on top of the 'APS-C' format's 1.5x crop. However, it is worth noting that the resolution is still a healthy 31 megapixels. For a full-size image, the top shooting speed is 13 fps with the sensor shutter and 8.0 fps with the camera's focal plane shutter. Burst lengths for best-quality JPEG capture are quoted at "1000+" frames with the latter and at over 160 with the former. 'Pre-Shot' buffering is available when using the sensor shutter and activates when the shutter release is held at the half-way position (i.e. for autofocusing and metering). It captures a rolling one second of frames – which, at 20 fps, will of course be 20 – prior to the shutter button being fully pressed when they'll then be recorded to the memory card along with the following sequence. There's a single memory card slot for SD devices and with UHS-II and Video Speed Class 90 support.

TASTY RECIPES

It's no surprise that the X-E5 has the full complement of Fujifilm's 20 current 'Film Simulation' profiles, along with a facility for separately creating and storing three user-created "recipes" (which is a term borrowed from the cinematography world). These are designated FS1 to FS3 and use not only the adjustable profile parameters (such as colour, contrast and sharpness), but also mix in the effects processes – 'Colour

FILM
E5
S2 FS1

▲Three 'FS' positions can assigned to additional profiles or your own customised 'Film Simulation' recipes.

▲ Lookalike self-timer lever on the front panel has a number of functions engaged via its left/right actions and its central button.

ON
OFF
A
4000
2000
1000
500
250
180X
125
60
30
15
8
4
2
1
B
T
P
AEL AFL

▲ Shutter speed dial now as a 'P' position for the quick setting of the programmed exposure control mode.

FUJIFILM
X-E5
ON
OFF

Chrome Effect', 'Colour Chrome Effect Blue', 'Smooth Skin Effect', 'Grain Effect' and 'Monochromatic Colour' for the B&W modes.

It's always been possible to apply these effects to a 'Film Simulation' profile, but now they can be integrated into a recipe as a key 'ingredient' rather than an added extra. This is obviously a step beyond just modifying the existing 'pre-baked' profiles, although you can still choose to use the custom slots for storing customised adjustments that you want might to use again.

As before, there's an auto bracketing mode for 'Film Simulation' profiles – which now also includes the 'FS' trio – and allows for up to three to be applied simultaneously to an image. These profiles are applied directly to JPEGs or HEIFs, and appended to a RAW file as a post-camera processing option (when there's actually the option to switch between any of them).

Auto bracketing is also available for exposure, dynamic range processing, ISO, white balance and focus. The focus bracketing can be set for up to 999 frames with a shift in the focus from one through to ten steps.

The other in-camera adjustments for JPEGs and HEIFs include 'Dynamic Range Priority' processing, the just-mentioned dynamic range expansion processing, multi-shot HDR capture and Fujifilm's 'Lens Modulation Optimiser' which corrects for the diffraction blur which occurs when using very small aperture settings. All other lens corrections are performed automatically behind-the-scenes.

> WITH ITS HIGHER-END CONSTRUCTION AND MORE CLASSICAL STYLING, THE X-E5 FEELS QUITE DIFFERENT TO ITS PREDECESSORS AND LOOKS A LOT SMARTER TOO."

Additionally, the X-E5 has a multiple exposure facility, an intervalometer, in-camera panoramas, and auto flicker detection with auto shutter speed correction. The multiple exposure facility allows for a total of nine frames to be combined with the choice of Additive, Average, Comparative Light or Comparative Dark exposure management options. The intervalometer has a facility for recording unlimited frames or, alternatively, it can be set to a specific count of up to 999 frames.

Also not surprisingly, the X-E5 steps up to all the autofocusing updates that have come with the other recent fifth-gen X mount bodies. This means subject recognition is available for people, animals, birds (which includes insects), cars, motorcycles and push bikes, trains and aircraft (which includes drones). Face/eye detection is the default acquisition and tracking mode for humans, and it can deal with people wearing goggles, spectacles or masks; or if the subject is in profile. It can also be set to prioritise either the right or left eye. However, as across the current range, it remains that human face/eye detection is automatically switched off when you select one of the other subject recognition modes and vice versa which is just a bit clunky. And, unlike the X-M5, there's no automatic subject recognition either… mainly because the X-E5 doesn't have the former's fully-automatic point-and-shoot mode.

As before, the phase-detection autofocusing has 425 selectable measuring points which are arranged in a 25x17 pattern with the option of switching to 117 points in a 13x9 pattern for quicker selection. Low light sensitivity extends down to -7.0 EV at ISO 100 and with the super-fast bit pricey XF 50mm f/1.0 prime lens, so the more realistic spec is -4.0 EV at f/2.8.

There's quite a selection of AF area modes which gradually increase in size from Single-Point (itself adjustable to one of six sizes), to Zone (in 9x3, 7x1, 7x3, 7x7, 5x5, 5x3 or 3x3 point clusters selected from the 117 points) and then on to Wide which uses all the measuring points. There's also an 'All' setting which allows you to cycle through these three modes via the rear input wheel. In addition, you can create three custom Zone areas in any size or shape you want. With continuous AF operation, the area modes are Single-Point, Zone, Tracking and All. As is now a fixture on both X and G mount Fujifilm mirrorless cameras, the 'AF-C Custom' submenu provides a set of five scenarios for fine-tuning tracking based on how the subject is moving and via three parameters – Tracking Sensitivity, Speed Tracking Sensitivity and Zone Area Switching – or there's a sixth option for creating your own customised configuration.

There's another couple of Fujifilm 'staples' provided in the choices of assists for manual focusing, namely the 'Digital Split Image' and 'Digital Microprism' displays. These are 'virtual' representations of, respectively, the split-image rangefinder and the gridded collar or ring which surrounded it in a traditional reflex camera's optical viewfinder. The 'Digital Split Image' display can be in either colour or B&W, but latter actually makes it easier to see what's going on. Frankly, in practice the focus peaking display is much easier to use and is available in the choice of red, white, blue or yellow,

▲ Exposure compensation dial is marked to +/-3.0 EV with the full +/-5.0 EV range accessed via the 'C' setting.

▲ Shutter speed button still incorporates a classic cable-release socket.

▲ A dedicated Bluetooth pairing button is set into the baseplate.

each with two intensity levels. It's probably for this reason that the 'Dual Display' – an adjunct to the manual focusing aids – appears to have been dropped the X-E5. It was a nice idea, but not all that effective in practice.

Exposure control is based TTL metering using the imaging sensor with 256 measuring points and the choice of multi-zone, centre-weighted average, fully averaged or spot patterns. The spot meter can be linked to the active focusing point or zone. Additionally, the metering will be tuned to type of subject selected with subject-recognition AF. There's the standard set of 'PASM' exposure control modes, but the X-E5 has an additional 'P' setting on the shutter speed dial so you can select the program mode directly. The auto exposure overrides are an AE lock, exposure compensation for up to +/-5.0 EV and, as mentioned earlier auto bracketing which can applied over sequences of two, three, five, seven or nine frames with adjustments of up to +/-3.0 EV per frame. The focal plane shutter has a speed range of 15 minutes up to 1/4000 second with flash sync up to 1/180 second and a 'B' setting which times out at 60 minutes. The sensor shutter runs up to 1/180,000 second, but precludes the use of flash so there's the option of the hybrid 'electronic first curtain shutter' (EFCS) which also has a range of 900-1/4000 second. There are three other 'mix-and-match' settings with the 'M+E', 'EF+M' and EF+M+E combos seamlessly switching to the higher shutter speeds as needed.

The white balance control options comprise three auto modes – Auto, White Priority and Ambience Priority – with the latter two primarily for use with incandescent light sources to either correct for, or preserve the warmer tones. Alternatively, there's a choice of seven lighting presets (including one for shooting underwater), the provision for making and storing up to three custom WB measurements, white balance shifting in all modes and presets, and the previously-mentioned auto bracketing which is over three frames. Finally, there's manual colour temperature setting over a range of 2500 to 10,000 degrees Kelvin.

IN THE HAND

With its higher-end construction and more classical styling, the X-E5 feels quite different to its predecessors and looks a lot smarter too. The new controls – compared to the X-E4 – are a rear input wheel which, along with the front one, also has a press action, a dedicated dial for the 'Film Simulation' profiles and multi-function lever on the front panel. Styled to look like the classic clockwork self-timer actuator, this lever is the same as the one found on the front of the X100VI and the GFX100RF, but with different functions. A quick flick to the left or the right – it's spring-loaded so re-centres each time – selects the digital teleconverter settings (cycling progressing through 1.4x, 2.0x and off) and the viewfinder framing respectively which is a new feature called 'Surround View'. Hold the lever in place for longer – around two seconds – and you access either the aspect ratio settings or the custom 'Film Simulation' recipes. 'Surround

MAKING MOVIES

Obviously Fujifilm has a few X mount models that are more precisely targeted at video-makers – such as the X-M5, X-S20 and X-H2S – and the X-E5 is undoubtedly primarily a photographer's camera, but it's still got enough capabilities to do what's likely to be asked of it by these users. As with its photographic features, the X-E5 is fairly close to the X-T50 in video too which means it's got plenty, but with some limitations which might deter the more serious videographer. These include the single memory card slot – although the Video Class Speed 90 support is a plus – the absence of a dedicated output for monitoring headphones and the micro HDMI Type D port. And while the headline act is 6.2K resolution video, it comes with a 1.23x crop as, indeed, do the HQ modes for both 4K DCI and UHD as they're oversampled from 6.2K.

Both 4K DCI and 4K UHD are recorded using the full width of the sensor and you can have either 10-bit 4:2:2 colour with the HEVC H.265 codec or 8-bit 4:2:0 colour with MPEG 4 AVC/H.264, but with only LongGOP compression (while the X-T50 has an ALL-Intra option). Consequently, the maximum bit rate is 200 Mbps compared to the X-T50's 360 Mbps.

However, the X-E5 also has the wider F-Log2 profile for video which gives a claimed "13+" stops of dynamic range which translates into an increased exposure latitude. It has a base ISO of 1250 versus 640 for F-Log recording (which is also available and has a dynamic range of 12 stops). Alternatively, there's the Eterna and Eterna Bleach Bypass cinematic 'Film Simulation' profiles along with HLG HDR recording.

The range of resolutions and frame rates with H.265 encoding and 10-bit colour is from 4K DCI/UHD at 50/60 fps down to 2K DCI/FHD at up to 200/240 fps (but again with the 1.23x crop, as do the 100/120 fps speeds). The 4K recording at either 50 or 60 fps has a small 1.14x crop. There are overheating-related clip limits – as you'd expect with such a compact camera – namely around 60 minutes for 4K at 25/30 fps and 30 minutes at 50/60 fps, but these will be reduced when shooting in higher ambient temperatures (above 25 degrees Celsius). The 'Frame.io Camera to Cloud' support overcomes, to some extent, the absence of a second card slot as it can be used to send video proxies while recording the source footage.

For external recording via the HDMI output, there's the addition of 12-bit ProRes RAW or Blackmagic RAW encoding at up to 6.2 K at 25/30 fps.

For sound recording the X-E5 has built-in stereo microphones with auto/manual level controls, a wind-cut filter, a low-cut filter and an attenuator. The stereo audio input can be switched between mic level and line level. It's possible to record four-channel sound using both the internal mics and a stereo audio input, plus the Tascam CA-XLR2D-F XLR mic adapter is supported.

The X-E5's video-specific features include a choice of zebra patterns with adjustable brightness thresholds, time coding and electronic IS to compliment the IBIS (but which introduces a small crop). Also available for video are all the 'Film Simulation' profiles (and their adjustable parameters), the monochromatic colour adjustments, the dynamic range expansion processing and high ISO noise reduction plus there's a video-only correction for lens vignetting. All the AF capabilities translate as well and for video shooting it's possible to adjust the AF response speed and the tracking sensitivity. It's also worth noting that tracking can be initiated by simply tapping on the subject in the touch screen and the camera will then follow any subsequent movement. There's an additional manual focus assist called the focus meter which has an indicator needle display to show whether the focus is in front of or behind the subject. Additionally, it can be used in conjunction with the focus peaking display which is very useful in practice.

In a nutshell then, the X-E5 is a pretty handy video camera, especially if you're happing shooting in the standard 4K modes which don't involve a crop. While the image quality in the HQ 4K modes is noticeably superior, the standard subsampled 4K footage still has plenty of sharp detailing and a smooth tonality. The X-E5's compact size is a big plus for handheld shooting

EST 1863
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67 BAI
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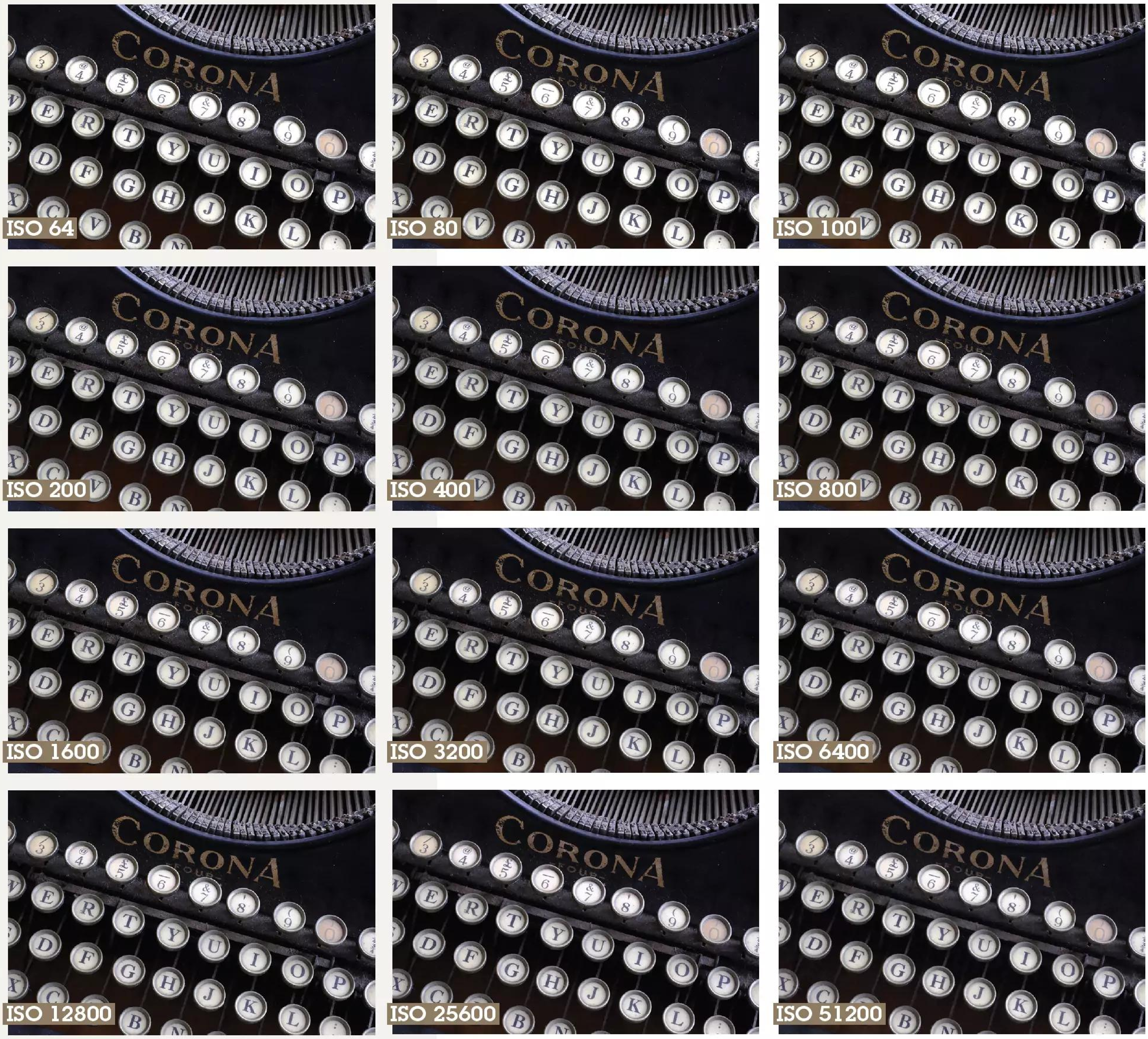


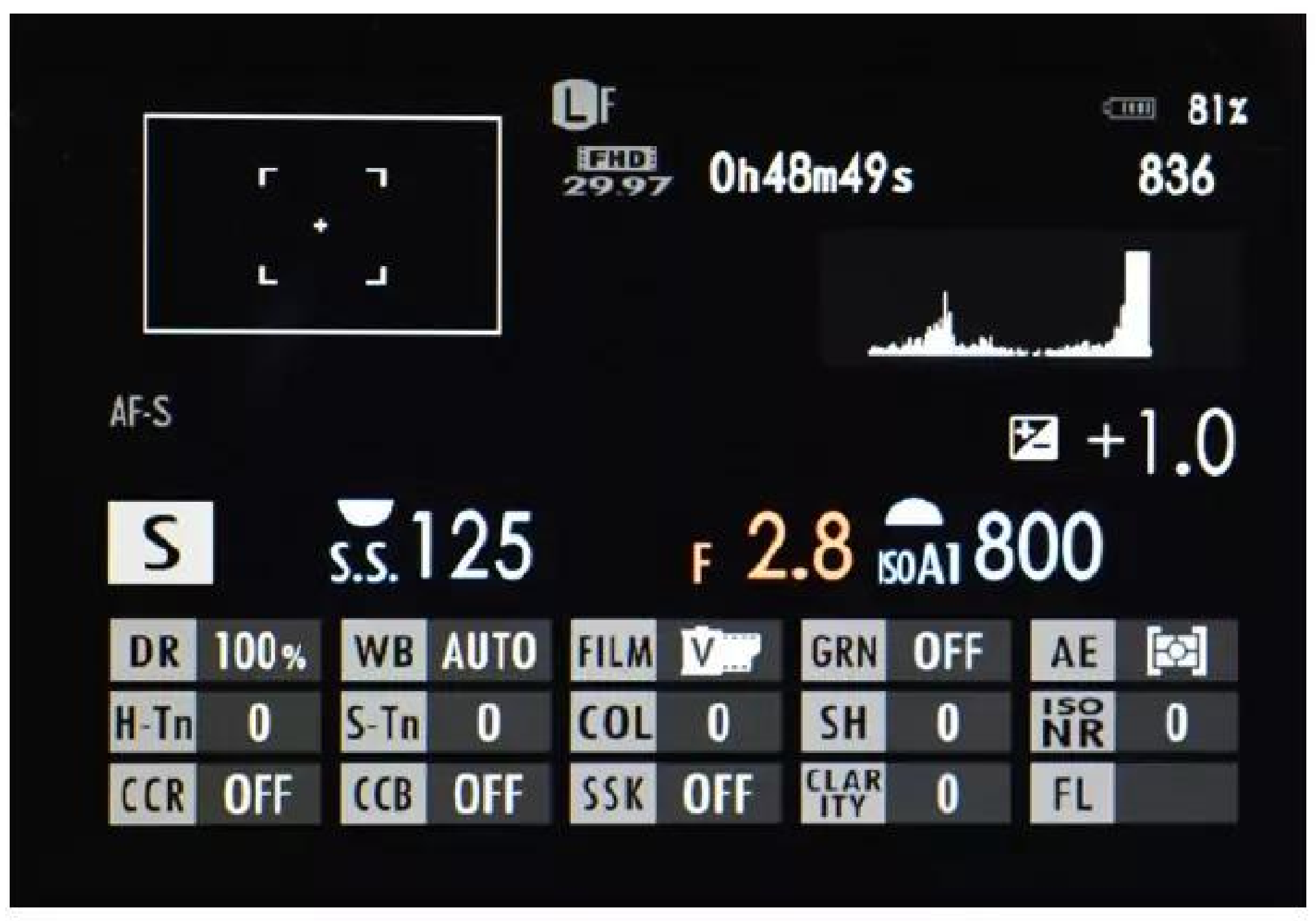
▲The X-E5's native sensitivity range spans ISO 125 to 12,800 with extensions to ISO 64, 80, 100, 25,600 and 51,200. Like the X-T50 and the X-M5 – which share the same fifth-generation 'X-Trans' high-res sensor – pixel-level 'dual gain' conversion enhances the high ISO performance by having two base ISO settings... in this case set at ISO 125 and 500 for still photography. This enhances the high ISO performance, making the entire native ISO range useable. These test images are JPEG/large/fine files taken in the aperture-priority auto exposure mode with the aperture set to f/11 so the exposure time varies to compensate for the adjustments to sensitivity. Both High ISO and Long Exposure noise reduction are switched off. XF 16-55mm f/2.8 R LM WR.

◀Test images captured as JPEG/large/fine files with the Fujinon XF 16-55mm f/2.8 R LM WR zoom lens and the XF 23mm f2.8 R WR prime lens. Velvia/Vivid 'Film Simulation' preset, shutter-priority auto exposure control and multi-zone metering at ISO 200 or ISO 400. The out-of-the-camera JPEGs exhibit plenty of sharp detailing along with creamily smooth tonal gradations. A wide dynamic range ensures good detailing is retained in both the brighter highlights and the darker shadows.

View' allows you to switch between viewfinder image borders – Black, Semi-Transparent or Line (which is white) – when shooting at an aspect ratio other than 3:2 or using the digital teleconverter settings. Select the Black option and the teleconverter crops which be shown full-screen.

There's also a button set within this lever which cycles though the viewing mode options (i.e. EVF, LCD or both). As per all the latest Fujifilm X mount models, these are just the defaults and you can select from around 80 alternatives – i.e. just about everything that the camera can do – should you want a specific set-up. If you count all the multi-function lever's actions separately, a total of nine physical controls are customizable plus there's the 'Touch Functions' ('T-Fn1 to 'T-Fn4") which are now standard on all Fujifilm's cameras. These employ left, right, up or down swipe actions on the monitor's touch screen to select assigned functions, and again there's an extensive choice of alternatives to the defaults which are for the full set of histograms, the level indicators, the white balance settings and the 'Film Simulation' profiles.

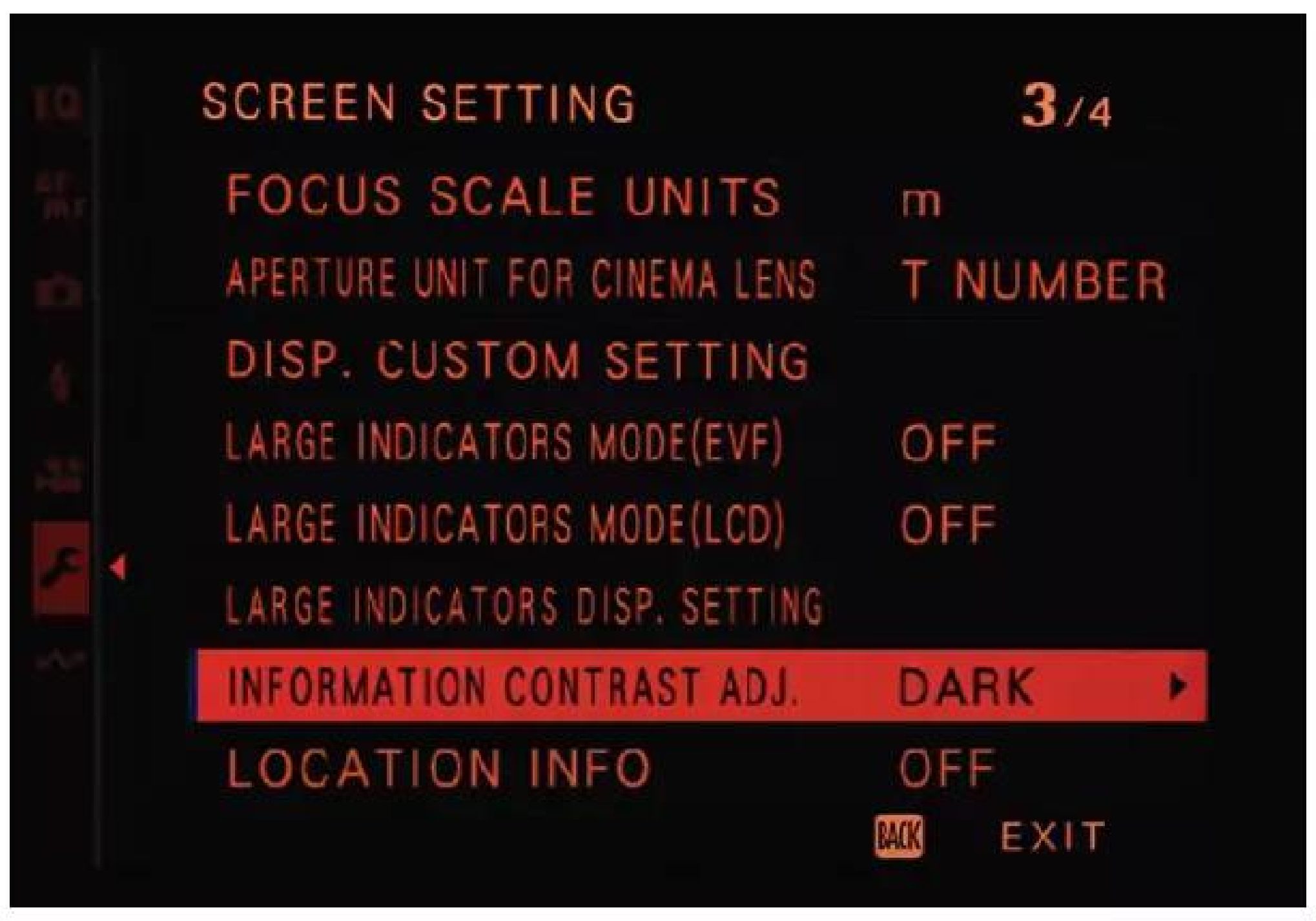
We've already seen an external selector for the FS profiles on the X-T50 and the X-M5, but the X-E5's execution is the classiest with a knurled setting wheel and a round indicator window in the camera's top panel. It's pure theatre, of course, but it looks great and adds to the more traditional appearance and feel of this model. Obviously, there isn't room for the full suite, so there's the staples – such as Velvia, Provia and Astia – plus positions for the three custom FS recipes, but as noted earlier, these can also be assigned to additional pre-



S S.S.125 F 2.8 ISO A1 800 +1.0

DR 100% WB AUTO FILM V GRN OFF AE
H-Tn 0 S-Tn 0 COL 0 SH 0 ISO NR 0
CCR OFF CCB OFF SSK OFF CLARITY 0 FL

▲ Monitor-based 'Info Display' is comprehensive, and includes a real-time histogram and an AF point/zone map.



SCREEN SETTING 3/4
FOCUS SCALE UNITS m
APERTURE UNIT FOR CINEMA LENS T NUMBER
DISP. CUSTOM SETTING
LARGE INDICATORS MODE(EVF) OFF
LARGE INDICATORS MODE(LCD) OFF
LARGE INDICATORS DISP. SETTING
INFORMATION CONTRAST ADJ. DARK
LOCATION INFO OFF
BACK EXIT

▲The 'Dark Ambient Lighting' red-on-black displays are designed to preserve your night vision.

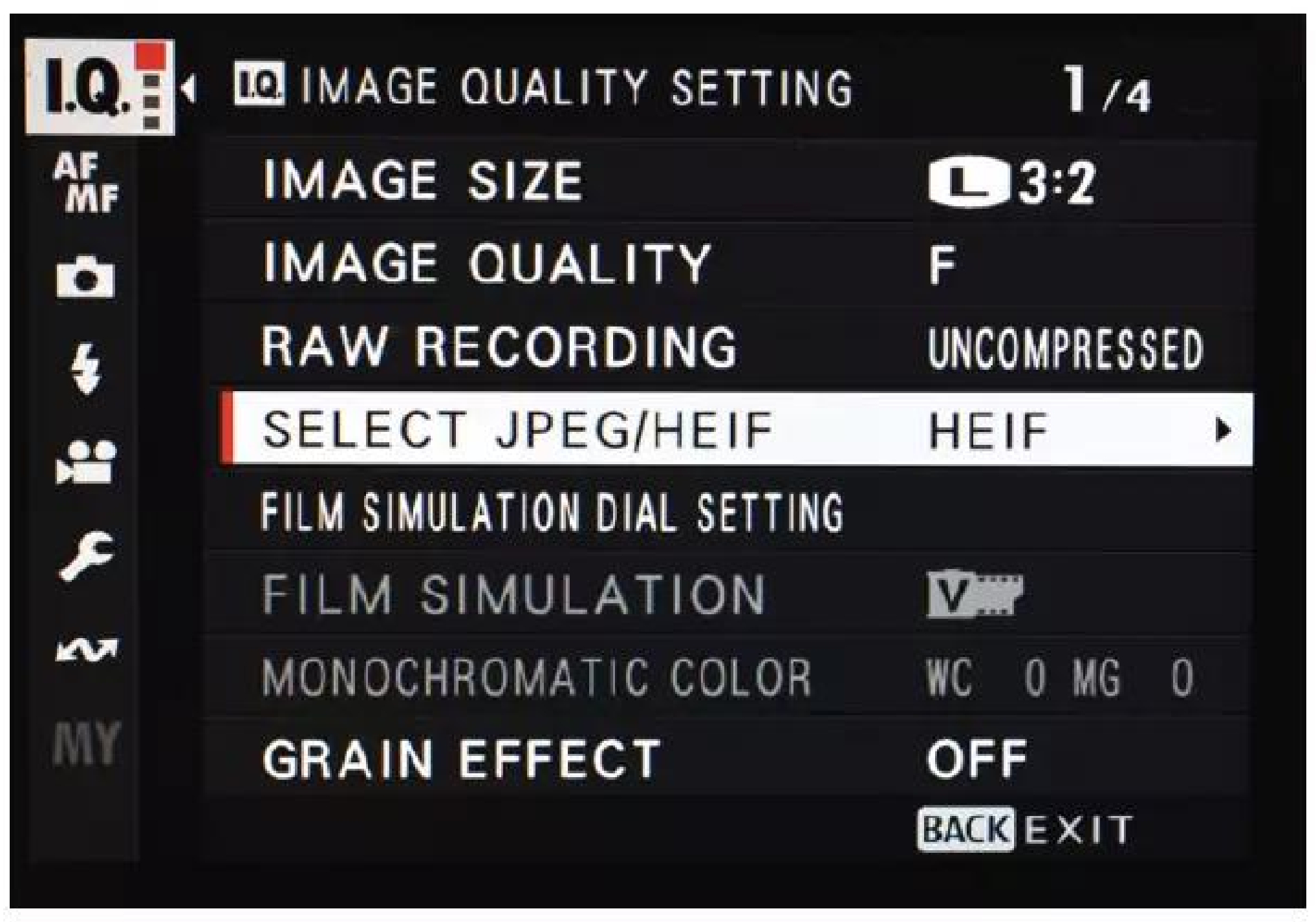
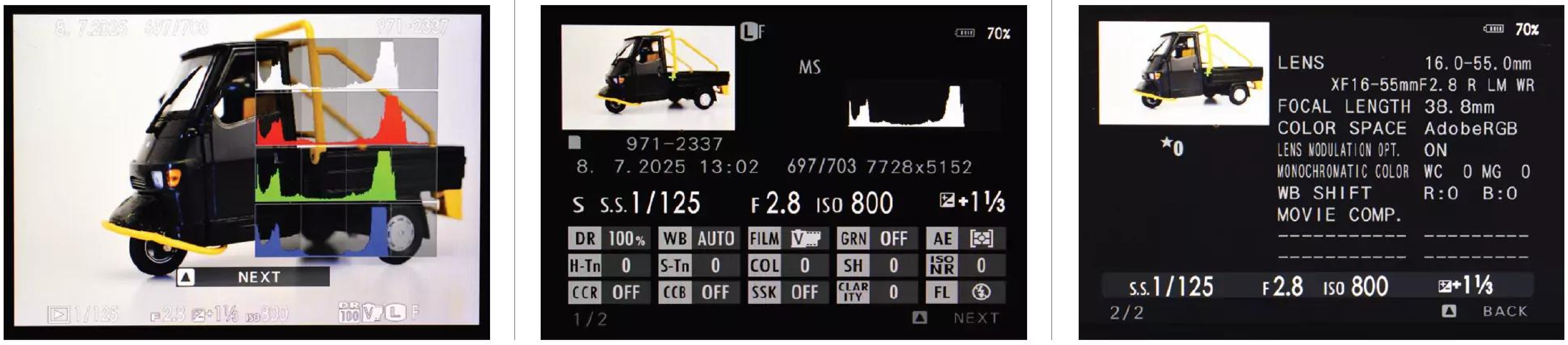


IMAGE QUALITY SETTING 1/4
IMAGE SIZE L 3:2
IMAGE QUALITY F
RAW RECORDING UNCOMPRESSED
SELECT JPEG/HEIF HEIF
FILM SIMULATION DIAL SETTING
FILM SIMULATION V
MONOCHROMATIC COLOR WC 0 MG 0
GRAIN EFFECT OFF
BACK EXIT

▲ Like all the latest generation Fujifilm X mount cameras, the X-E5 has 10-bit HEIF capture.



971-2337
8. 7. 2025 13:02 697/703 7728x5152
S S.S.1/125 F 2.8 ISO 800 +1⅓
DR 100% WB AUTO FILM V GRN OFF AE
H-Tn 0 S-Tn 0 COL 0 SH 0 ISO NR 0
CCR OFF CCB OFF SSK OFF CLARITY 0 FL
1/2 NEXT

LENS 16.0-55.0mm
XF16-55mmF2.8 R LM WR
FOCAL LENGTH 38.8mm
COLOR SPACE AdobeRGB
LENS MODULATION OPT. ON
MONOCHROMATIC COLOR WC 0 MG 0
WB SHIFT R:0 B:0
MOVIE COMP.
S.S.1/125 F2.8 ISO 800 +1⅓
2/2 BACK

▲The replay/review screens include a full set of histograms, a highlight warning, capture data with a brightness histogram (the thumbnail includes the focus point and highlight warning) and the thumbnail accompanied by the lens data and additional capture info.

baked profiles. Additionally, you can modify the ACROS B&W 'A' setting to add any of the contrast filter options. If you want to access any other 'Film Simulation' profile from the dial, there's a 'C' setting which will take you to whichever profile you have preset in the camera's main 'IQ' shooting menu.

There's also now a small handgrip – both front and rear – which enhances both comfort and a more secure hold. As noted earlier, the top and bottom covers are aluminium, but as per the X-T50 and X-M5, there are no weather protection measures. The shutter release retains a cable-release socket and it's a real one, of course, not just for show. The rear panel's control layout also includes a joystick controller and a small number of function buttons, including one for the drive settings which also covers the various multi-shot capture modes – namely auto bracketing, HDR, a multiple exposure facility and in-camera panorama stitching. For good measure, this is also where you'll find the 'Advanced Filter' effects.

> THE COMBINATION OF THE 'X-TRANS CMOS 5 HR' SENSOR AND 'X PROCESSOR 5' ENGINE ALREADY HAVE PLENTY OF RUNS ON THE BOARD WHEN IT COMES TO IMAGING PERFORMANCE."

The X-E5's EVF is the same as the X-T50's so it's an OLED panel with a resolution of 2.36 megadots and a magnification of 0.62x (35mm equivalent). As we noted with that camera, it seems quite small until you get used to it, and there's the addition of a 'Classic Display' mode which replicates the viewfinder of a 35mm SLR complete with a plus/minus match-needle indicator (which shows over/under exposure compensation) and a red LED-look (i.e. segmented) exposure read-outs. It's another nice touch.

The monitor screen is inherited from the X-M5 which means 1.04 megadots resolution, but with adjustments for up/down tilt only. Again, the res looks pretty basic by current standards, but image still looks pretty sharp with a good contrast range. The touch screen implementation includes focus point/zone/face selection and, for playback, there are touch controls for browsing, zooming in or out (which also selects the thumbnail pages), or zooming in on the active focus point/zone. With a power zoom lens fitted, there's also a Touch Zoom function. Both EVF and monitor are adjustable for brightness, colour saturation and colour balance.

However, also as usual on a Fujifilm X mount camera, the main menus aren't included in the touch controls and are navigated via the joystick controller along with the front and rear input wheels. However, the camera's 'Quick Menu' screen makes up for it, enabling faster access to up to 15 functions by simply tapping on the appropriate tile. You can simplify this by reducing the number of displayed functions to 12, eight or just four. Additionally, up to seven 'Custom Settings Banks' can be created as additional 'Quick Menus' which, for example, you might use for specific subjects or shooting situations. There's also a video-specific 'Quick Menu' screen, again customisable.

The live view screen can also be extensively customised with the key elements comprising 3x3 or 4x6 guide grids, a real-time histogram (either brightness only, or with the RGB channels as well), level indicators – either single- or dual-axis displays – and a highlight warning (or you can use video's zebra patterns which have an adjustable threshold and so can be more helpful). There's a long list of available read-outs and status indicators and you simply check the boxes in the 'Display Custom Setting' submenu. Additionally, you can increase the size of selected icons and also adjust the display contrast to enhance legibility in different lighting conditions. This includes a 'Dark Ambient Lighting' setting for shooting at night so the displays don't affect your night vision.

The X-E5 is powered by the 1260 mAh NP-W126S lithium-ion battery which also is used in the X-T50 and the X-M5. Fujifilm quotes 400 shots when the camera is the Economy power mode. This drops to 310 shots in the Normal mode. In-camera battery recharging is available via the USB Type C port which also allows for Webcam video streaming at up to 4K 50/60 fps. The other interfaces are micro HDMI (i.e. Type D) and a 3.5mm minijack input an external stereo microphone or a wired remote trigger (but there's no audio output). The wireless connectivity options are WiFi 2.4

GHz and Bluetooth 4.2 LE with the Fujifilm XApp allowing for both image file transfer and remote control of the camera. There's a dedicated Bluetooth pairing button set into the baseplate which obviously you'll only need to use to initially establish the connection. Like all the most recent Fujifilm cameras, the X-E5 also supports the 'Frame.io Camera to Cloud' service so high-res images and video clips can be directly and immediately uploaded to Adobe's Frame.io software platform.

SPEED AND PERFORMANCE

Using a SanDisk Extreme Pro 32 GB SDXC UHS-II memory card and the leaf shutter, the X-E5 captured a burst of 85 JPEG/large/fine frames in 10.262 seconds which represents a continuous shooting speed of 8.28 fps. Switching to the sensor shutter, a sequence of 96 best-quality JPEGs (uncropped) was recorded in 7.263 seconds which equates to a shooting speed of 13.2 fps. The test files averaged around 22.7 MB in size.

The current version of Fujifilm's hybrid autofocusing system has already proven itself in the X-T50, X-M5 and GFX100RF so there are no surprises here in terms of the X-E5's AF performance. It's lightning fast in both its responsiveness and speed, and very reliable even in low light situations. The expanded list of AI-based subject recognition covers a lot of what E-X5 users are likely to be shooting while the upgraded movement prediction algorithm enhances the tracking reliability more generally. The tracking can comfortably keep up with objects that are fast moving and/or change direction either continually or erratically. The eye/face detection for humans stays locked-on with a smaller-sized head and also if the subject either looks away or looks down for a moment or two.

The combination of the 'X-Trans CMOS 5 HR' sensor and 'X Processor 5' engine also already have plenty of runs on the board when it comes to imaging performance. As expected, the out-of-the-camera JPEGs exhibit plenty of sharp detailing along with creamily smooth tonal gradations. A wide dynamic range ensures good detailing is retained in both the brighter highlights and the darker shadows. With RAW capture, this dynamic range translates into plenty of exposure latitude and, consequently, a lot of flexibility when it comes to adjusting brightness in post-camera processing.

As noted earlier, the 'X-Trans CMOS 5 HR' sensor also has 'dual conversion gain' output circuits which are designed to enhance the high ISO performance. The two outputs are optimised for dynamic range – in this case below ISO 500 – and higher gain (or sensitivity) above ISO 500. Consequently, there is less noise at these higher ISO settings than would otherwise be the case. With JPEG capture this means that less aggressive noise reduction processing is required at the higher ISO settings which benefits both the sharpness and the colour saturation.

Consequently, the X-E5's full native sensitivity range is usable without any discernible loss of colour saturation, contrast or sharpness up to ISO 3200, with only a minimal loss of image quality at ISO 6400 and 12,800. The fall-off in definition increases progressively through the extension settings, but shooting at ISO 25,600 is still quite possible although it will impose limits on print size.

As always, a compelling argument for buying any current Fujifilm camera is the sophisticated colour science that underpins the 'Film Simulation' profiles. The philosophy behind these profiles is to balance colorimetric colour – or 'real' colour – with expected or 'memorised' colour… which is how we think colours *should* look like. It's actually quite hard to achieve in terms of balancing absolute accuracy with what looks natural or, perhaps more importantly, pleasing… and also to achieve this across a full saturation range from pastel to vivid. Fujifilm's long experience in the development of colour films provides the foundation which is exactly why they're called 'Film Simulation' profiles and directly linked to specific film products such as the Fujicolor colour negative stocks and the immensely popular Fujichrome transparency films.

THE VERDICT

With its particular combination of size, styling and specifications; the X-E5 has to become a new Fujifilm X mount favourite, especially for photographers. It beats the X-M5 because it has an EVF (and a faster processor) and the X-T5 because it's quite a bit more compact… and if you're a fan of the rangefinder-type form factor, you're going to pick it over the X-T50 (although the two have very similar capabilities). And, as noted at the outset, the X mount model is a viable alternative to the fixed-lens X100VI. Of course, this also shows that Fujifilm pretty much now has something for everyone in its X mount line-up… which is why it's doing so well in the sales charts.

The more classical styling is very appealing visually and while not as overtly traditional as the X100VI, the proportions and lines are still just as well balanced. It feels great to handle and the ergonomics promote efficiency and speed with plenty of choices via the touch screen and the physical controls as to how you drive the X-E5. Regardless, it's a thoroughly involving and enjoyable camera to use, enhanced by features such as the classic viewfinder display and the capacity to really spice up your own 'Film Simulation' recipes. Better still, there's the promise of all the image quality that 40 megapixels can deliver along with an excellent high ISO performance. It really is an enticing proposition and, as a result, a small camera that's still big on value.

VITAL STATISTICS

FUJIFILM X-E5 $2,699 body only, recommended retail price

Type: Enthusiast-level digital mirrorless camera with Fujifilm X bayonet lens mount.

Focusing: TTL automatic hybrid system using phase-difference detection and contrast-detection measurements. 425 measuring points (in 25x17 or 13x9 patterns). Single-point (six sizes), zone (in 9x3, 7x1, 7x3, 7x7, 5x5, 5x3 or 3x3 point clusters selected from 117 points), custom zone (three user-defined shapes) and wide/tracking modes. Five 'AF-C Custom' settings for optimising tracking plus a user-definable setting for Tracking Sensitivity, Speed Tracking Sensitivity and Zone Area Switching. Face/eye detection with left/right priority. Subject detection for animals, birds and insects, cars, motorcycles and bikes, aircraft and drones, and trains. Auto subject detection when the camera is in full auto mode. Focus frame adjustable to five sizes. Focus frame adjustable to five sizes. Range is 10 cm to infinity (Auto Macro mode). Focus range limiter. Face/eye detection with left/right priority. Manual switching between one-shot and continuous AF modes. AF+MF mode. Low-light assist via built-in illuminator. Manual focus assist via magnified image, 'Digital Split Image' display (colour or B&W), 'Digital Microprism' display, or focus peaking display (white, red, blue or yellow; low or high levels). Sensitivity range is EV -7.0 - 18 (ISO 100 and f/1.0).

Exposure Modes: Continuously-variable program with shift, shutter-priority auto, aperture-priority auto and metered manual. 14 subject/scene modes. Automatic subject/scene mode selection (12 modes) in the 'Auto' mode.

Shutter: Electronic focal plane type, vertical travel, metal blades, 900-1/4000 second plus 'B' (up to 60 minutes). Flash sync up to 1/180 second. Sensor shutter has a speed range of 900-1/180,000 second. Electronic front curtain shutter (EFCS) has a speed range of 900-1/4000 second plus 'B' (up to 60 minutes). Exposure compensation up to +/-5.0 EV in 1/3-stop increments.

Viewfinder: 1.0 cm OLED-type EVF with 2.36 megadots resolution, 100% vertical/horizontal scene coverage and 0.62x magnification (35mm equivalent). Automatic/manual switching between the EVF and the LCD monitor screen. Eyepiece strength adjustment built-in. 7.62 cm LCD monitor with 1.04 megadots resolution, tilt adjustment and touch screen controls. Both EVF and monitor adjustable for brightness, colour saturation and colour balance. EVF has 'Classic Display' mode which replicates a traditional film camera viewfinder display.

Flash: No built-in flash. External flash units connect via hotshoe.

VITAL STATISTICS

Additional Features: Aluminium bodyshell, AE/AF lock, auto exposure bracketing (up to +/-3.0 EV over two, three, five, seven or nine frames), multi-mode self-timer (2 and 10 second delays), audible signals, auto power-off, cable release connection, wired remote trigger connection.

DIGITAL SECTION

Sensor: 40.2 million (effective) pixels 'X-Trans CMOS 5 HR' BSI CMOS sensor with 23.5x15.6 mm imaging area and 3:2 aspect ratio. Native sensitivity equivalent to ISO 125-12,800; extendable to 64, 80, 100, 25,600 and 51,200.

Focal Length Magnification: 1.5x.

Formats/Resolution:

- Two JPEG compression settings, two HEIF compression settings, RAW output (compressed, lossless compressed or uncompressed), TIFF RGB, RAW+JPEG and RAW+HEIF capture.
- Three resolution settings at 3:2 aspect ratio; 7728x5152, 5472x3648 and 2888x2592 pixels.
- Three resolution settings at 4:3 aspect ratio; 6864x5152, 4864x3648 and 3464x2592 pixels.
- Three resolution settings at 5:4 aspect ratio; 6423x5152, 4560x3468 and 3264x2592 pixels.
- Three resolution settings at 16:9 aspect ratio; 7728x4344, 5472x3080 and 3888x2184 pixels.
- Three resolution settings at 1:1 aspect ratio; 5152x5152, 3648x3648 and 2592x2592 pixels.
- 24-bit RGB colour for JPEGs, 30-bit colour for HEIFs and 42-bit RGB colour for RAW files. RAW files are sized at 7728x5152 pixels.

Video Recording:

- MOV format with 10-bit 4:2:2 or 4:2:0 colour (HEVC/H.265 codec, LongGOP compression) at 6240x3510 pixels (6.2K); 30, 25 or 24 fps (200, 100, 50, 25 or 8.0 Mbps) and 16:9 aspect ratio with a 1.23x crop.
    - At 4096x2160 pixels (4K DCI HQ); 30, 25 or 24 fps (200, 100, 50, 25 or 8.0 Mbps) and 17:9 aspect ratio with a 1.23x crop. At 3840x2160 pixels (4K UHD HQ); 30, 25 or 24 fps (200 100, 50, 25 or 8.0 Mbps) and 16:9 aspect ratio with a 1.23x crop.
    - At 4096x2160 pixels (4K DCI); 60, 50, 30, 25 or 24 fps (200, 100, 50, 25 or 8.0 Mbps) and 17:9 aspect ratio (with a 1.14x crop at 50/60 fps). At 3840x2160 pixels (4K UHD); 60, 50, 30, 25 or 24 fps (200, 100, 50, 25 or 8.0 Mbps) and 16:9 aspect ratio (with a 1.14x crop at 50/60 fps).
    - At 2048x1080 pixels (2K DCI) at 60, 50, 30, 25 or 24 fps (200, 100, 50, 25 or 8.0 Mbps) and 17:9 aspect ratio (with a 1.14x crop at 50/60 fps). At 1920x1080 pixels (2K FHD) at 60, 50, 30, 25 or 24 fps (200, 100, 50, 25 or 8.0 Mbps) and 16:9 aspect ratio (with a 1.14x crop at 50/60 fps).
    - At 2048x1080 pixels (2K DCI) at 240, 200, 120 or 100 fps (200 Mbps) and 17:9 aspect ratio with a 1.23x crop. At 1920x1080 pixels (2K FHD) at 240, 200, 120 or 100 fps (200 Mbps) and 16:9 aspect ratio with a 1.23x crop.
    - MOV format with 8-bit 4:2:0 colour (MPEG 4 AVC/H.264 codec) at 4096x2160 pixels (4K DCI HQ); 30, 25 or 24 fps (200, 100, 50, 25 or 8.0 Mbps) and 17:9 aspect ratio with a 1.23x crop.
    - At 3840x2160 pixels (4K UHD HQ); 30, 25 or 24 fps (200 100, 50, 25 or 8.0 Mbps) and 16:9 aspect ratio with a 1.23x crop.
    - At 4096x2160 pixels (4K DCI); 60, 50, 30, 25 or 24 fps (200, 100, 50, 25 or 8.0 Mbps) and 17:9 aspect ratio (with a 1.14x crop at 50/60 fps).
    - At 3840x2160 pixels (4K UHD); 60, 50, 30, 25 or 24 fps (200 100, 50, 25 or 8.0 Mbps) and 16:9 aspect ratio (with a 1.14x crop at 50/60 fps).
    - At 2048x1080 pixels (2K DCI) at 60, 50, 30, 25 or 24 fps (200, 100, 50, 25 or 8.0 Mbps) and 17:9 aspect ratio (with a 1.14x crop at 50/60 fps).
    - At 1920x1080 pixels (2K FHD) at 60, 50, 30, 25 or 24 fps (200, 100, 50, 25 or 8.0 Mbps) and 16:9 aspect ratio (with a 1.14x crop at 50/60 fps).
    - At 2048x1080 pixels (2K DCI) at 240, 200, 120 or 100 fps (200 Mbps) and 17:9 aspect ratio with a 1.23x crop.
    - At 1920x1080 pixels (2K FHD); 240, 200, 120 or 100 fps (200 Mbps) and 16:9 aspect ratio with a 1.23x crop.
- MP4 format with 8-bit 4:2:0 colour (MPEG 4 AVC/H.264 codec) at 4096x2160 pixels (4K DCI) at 60, 50, 30, 25 or 24 fps (200, 100, 50, 25 or 8.0 Mbps) and 17:9 aspect ratio (with a 1.14x crop at 50/60 fps).
    - At 3840x2160 pixels (4K UHD) at 60, 30, 25 or 24 fps (200, 100, 50, 25 or 8.0 Mbps) and 16:9 aspect ratio (with a 1.1x crop at 50/60 fps).
    - At 1920x1080 pixels (2K DCI) at 60, 50, 30, 25 or 24 fps (200, 100, 50, 25 or 8.0 Mbps) and 17:9 aspect ratio (with a 1.14x crop at 50/60 fps).
    - At 1920x1080 pixels (2K FHD) at 60, 50, 30, 25 or 24 fps (200, 100, 50, 25 or 8.0 Mbps) and 16:9 aspect ratio (with a 1.14x crop at 50/60 fps).
    - At 1920x1080 pixels (2K FHD); 240, 200, 120 or 100 fps (200 Mbps) and 16:9 aspect ratio and a 1.23x crop.
- Built-in stereo microphones with auto/manual levels adjustment, limiter, wind-cut filter and low-cut filter. Stereo audio input (switchable mic/line levels) and stereo headphone output adapter for USB C connector supplied.

Video Features: Long GOP or All-Intra compression, F-Log and F-Log2 gamma profiles, HLG HDR recording, time code (free run or rec run, drop frame correction), digital image stabilisation, silent operation via touch screen, HDMI rec control, focus peaking display, zebra patterns with adjustable brightness threshold, front and rear tally lamps.

HDMI Output: ProRes RAW 6.2K 16:9 with 10-bit 4:2:2 colour and 30, 25 or 24 fps. Blackmagic RAW 6.2K 16:9 and 6.2K 16:9 with 10-bit 4:2:2 colour and 30, 25 or 24 fps. 6.2K with 10-bit 4:2:2 colour and 30, 25 or 24 fps. 4K DCI HQ 17:9 with 10-bit 4:2:2 colour and 30, 25 or 24 fps. 4K DCI 17:9 with 10-bit 4:2:2 colour and 60, 50, 30, 25 or 24 fps. 4K UHD HQ 16:9 with 10-bit 4:2:2 colour and 30, 25 or 24 fps. 4K UHD 16:9 with 10-bit 4:2:2 colour and 60, 50, 30, 25 or 24 fps. Full HD 16:9 or 17:9 with 10-bit 4:2:2 colour and 60, 50, 30, 25 or 24 fps. High Speed Rec HDMI; Full HD 16:9 with 10-bit 4:2:2 colour and 120 or 100 fps.

Recording Media: Single memory card slot for SD, SDHC and SDXC with UHS-II and Video Speed Class 90 support.

Continuous Shooting: 1000+ JPEG/large/fine frames at up to 8.0 fps or 79 RAW (compressed) frames using the focal plane shutter. Up to 163 JPEG/large/fine frames at up to 13 fps or 46 RAW (compressed) frames using the sensor shutter. Low speed continuous mode captures at 5.0 fps with continuous AF/AE adjustment. Up to 168 JPEG/large/fine frames at 20 fps or 66 RAW (compressed) frames using the sensor shutter with a 1.29x crop. 'Pre-Shot' pre-capture buffering at 8, 10, 13 or 30 fps for one second.

White Balance: TTL measurement. Three auto modes, seven presets and three custom settings. White balance shifting/tuning in all modes and presets, and white balance bracketing. Manual colour temperature setting from 2500 to 10,000 degrees Kelvin. Auto White Priority maintains whites under incandescent lighting. Auto Ambience Priority maintains warmer hues under incandescent lighting.

Interfaces: USB 3.2 (Type C, 10 Gbps speed), micro HDMI (Type D), 3.5mm stereo audio input/remote trigger connector.

Additional Digital Features: In-body image stabilisation via sensor shift with five-axis movements and up to 7.0 stops of correction (at the frame's centre), sensor cleaning, 20 'Film Simulation' presets (Provia/Standard, Velvia/Vivid, Astia/Soft, Classic Chrome, Nostalgic Neg, Pro Neg High, Pro Neg Standard, Classic Neg, Reala Ace, Eterna/Cinema, Eterna Bleach Bypass, ACROS, ACROS+Yellow, ACROS+Red, ACROS+Green, B&W, B&W+Yellow, B&W+Red, B&W+Green, Sepia), three custom 'Film Simulation' slots (FS1, FS2, FS3), adjustable image processing parameters (Tone Curve – Highlight/Shadow, Colour Saturation, Sharpness, Clarity and Monochromatic Colour – warm-to-cool or green-to-magenta), 'Colour Chrome Effect' (Strong, Weak, Off), 'Colour Chrome Effect Blue' (Strong, Weak, Off), 'Smooth Skin Effect' (Strong, Weak, Off), 'Grain Effect' (Roughness: Strong, Weak, Off. Size: Large, Small), eight 'Advanced Filter' effects (Toy Camera, Miniature, Pop Colour, High-Key, Low-Key, Dynamic Tone, Soft Focus and Partial Colour [Red/Orange/Yellow/Green/Blue/Purple]), multi-shot HDR capture (Auto, HDR200, HDR400, HDR800, HDR800 Plus), multiple exposure facility (up to nine shots with Additive/Average/Bright/Dark exposure adjustment), flicker detection and correction, pixel mapping, 'Lens Modulation Optimiser' (LMO) processing, intervalometer (up to 999 frames or unlimited), dynamic range expansion (Auto, 100%, 200%, 400%), in-camera panoramas (horizontal or vertical), 'Quick Menu' control screen, real-time histogram display, dual-axis level display, grid displays (choice of two), guidance displays, 'Surround View' settings (Black, Semi-Transparent, Line), in-camera panoramas (120 or 180 degrees), bracketing functions (AE, Film Simulation, Dynamic Range, ISO, White Balance, Focus), in-camera lens corrections (Distortion, Colour Shading, Peripheral Illumination), high ISO noise reduction (plus/minus four levels), long exposure noise reduction (On/Off), sRGB and Adobe RGB colour space settings, in-camera editing functions (RAW to JPEG/HEIF/TIFF Conversion [19 adjustable parameters], HEIF-to-JPEG/TIFF conversion, Erase, Crop, Resize, Protect, Image Rotate, Voice Memo, Transfer To Smartphone, DPOF Print Order, PhotoBook Assist, Instax Print), slide show, multi-image playback, 9/100 thumbnail displays, zoom playback, silent mode, customisable 'My Menu' (16 items), seven custom 'Quick Menu' settings banks, copyright info, WiFi and Bluetooth 4.2 LE wireless connectivity, 'Frame.io Camera to Cloud' support.

Power: One 7.2 volt/1260 mAh rechargeable lithium-ion battery pack (NP-W126S type). In-camera battery charging via USB C.

Dimensions (WxHxD): body only = 124.9x72.9x39.1 mm.

Weight: 396 grams body only (without battery or memory card).

Price: $2699 body only. $3049 with the Fujinon XF 23mm f2.8 R WR prime lens. Choice of silver, charcoal or black finishes. Fujifilm Australia provides a three-year warranty for X mount mirrorless cameras and XF lenses purchased in Australia from an authorised reseller.

Distributor: Fujifilm Australia, telephone (02) 9466 2600 or visit www.fujifilm.com.au

Photo credit | 'Evans Head' by Tommi Pitkin | Tommi works at Broadbeach Camera House and shot this photo with the DJI Mini 3 drone, model no. FC3582. | **Lens specs** | f/1.7 | 6.72mm

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REPORT BY **PAUL BURROWS**

FUJIFILM
X-HF1 (X HALF)

FUJIFILM
X half
FUJINON ASPHERICAL LENS
SUPER EBC f=10.8mm 1:2.8

YOU CAN'T BE SERIOUS!

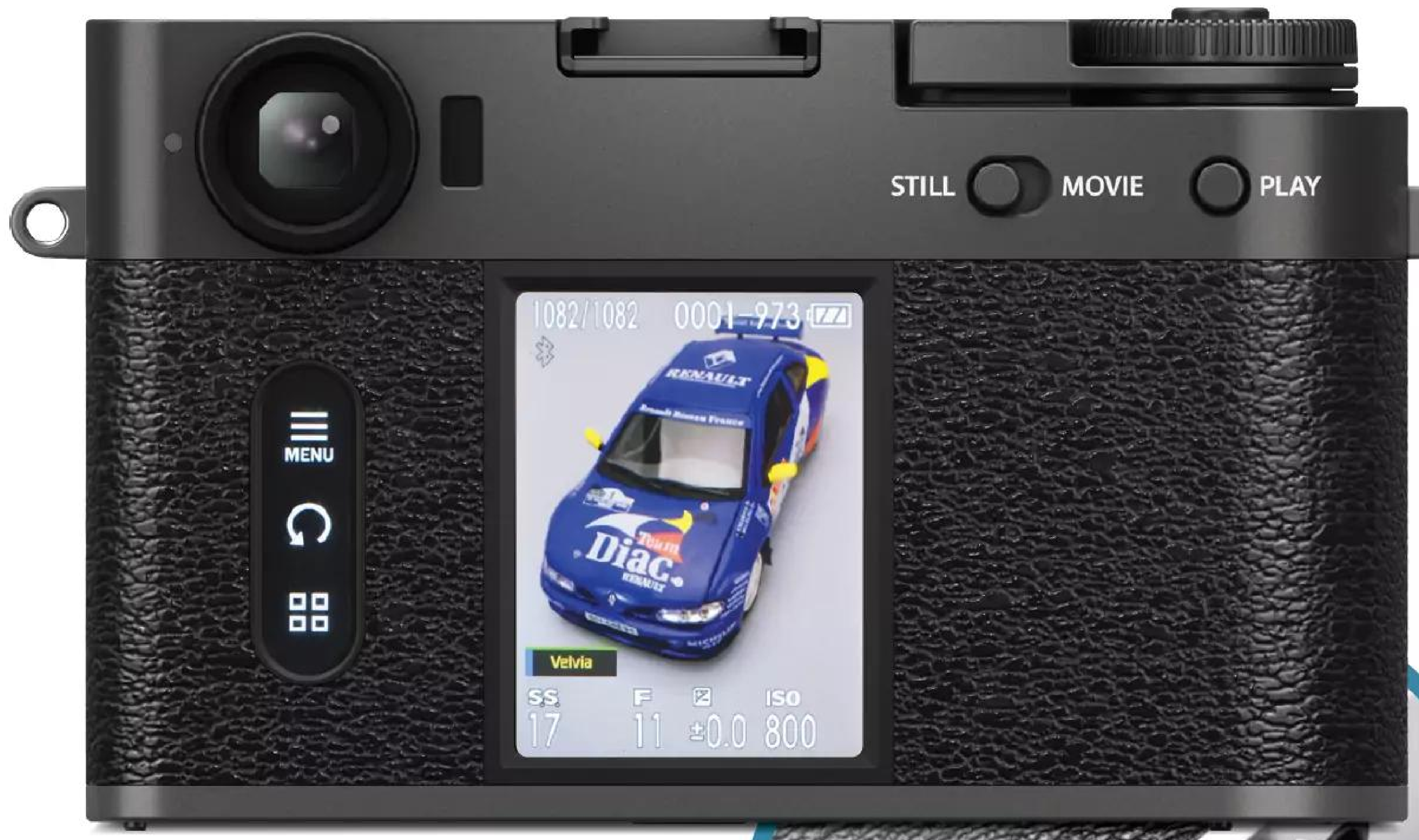
▲ Cute or what? Fujifilm's X Half is truly tiny and the retro styling looks great. There's a choice of silver, black or charcoal finishes.

It's a retro-styled fixed-lens compact camera, but not like anything that we've ever seen before. The X Half is not only a half frame camera – well, sort of – you can use it just like a film camera, but still with the conveniences of digital capture. It's clever all right, but does it really work?

Undoubtedly the most significant aspect of the Fujifilm X Half – apart from what is does and doesn't have in terms of features – is that it's a digital camera pretending to be a film camera. This means that you essentially get all the romantic aspects of using a film camera, but without the fuss and mess of actually having to deal with film… especially if you want to do your own processing. The way Fujifilm has set things up with the X Half and its companion app, you can still 'process' your pictures post-camera which, incidentally, is the first time you'll see them – and you even get a set of virtual negs – but you don't need darkness, chemicals or a lot of patience. Of course, true film fans will tell you this is all part of the deal – which it is – but if you're only in love with the notion of shooting film and not the realities, the X Half could well be the film camera you have when you're not having a film camera. It's very likely we'll see more of this type of thinking down the track and on higher-end cameras.

Like the Sigma BF, the X Half – officially the X-HF1 – is the result of some free thinking in a product planning department and, while the two are very different animals, there are some similarities. Chief among these is just how many features and functions have been omitted which, inevitably, is defining the X Half almost as much as what it actually is. The list of omissions is indeed very long, but in many instances, it's more a case of paring down the choices rather than deleting something completely. And while the BF's target audience is actually quite broad – as it's still a full frame mirrorless camera at heart – the X Half is much more specific in its appeal thanks to its extremely compact dimensions and its 'half frame' format. If you were thinking of something along the lines of a revived X10/20/30, you're going to be disappointed. And, indeed, if you were thinking more generally of a fixed-lens digital compact with some of the latest camera tech aboard – such as AI-based subject recognition – you're also likely to be disappointed. The X Half is definitely pretty capable, but it does things its own way and the let's-pretend-to-be-a-film-camera vibe is not going to be everybody's taste, especially as it impinges on various other aspects of how the camera works beyond just selecting a shooting mode. It also needs to remembered that while the X Half's arrival coincides with the recent revival of the compact camera, it will have been in development for at least a couple of years and so, in fact, is an answer to a different question… namely, is Fujifilm going to make a new film camera? Fujifilm's answer to this has always been ”no”, but the X Half is its clever digital-era compromise. What this also means, though, is that it's not the mainstream model that might have been expected in the current climate so it's certainly not competing with the likes of Ricoh's GR IV or Canon's PowerShot G7 X III.

> THE LIST OF OMISSIONS IS INDEED VERY LONG, BUT IN MANY INSTANCES, IT'S MORE A CASE OF PARING DOWN THE CHOICES RATHER THAN DELETING SOMETHING COMPLETELY.”



▲ Rear panel has two touch screens – a main monitor and a sub panel on its left – which work in conjunction with each other.

▶Battery is the same NP-W126S pack that's used in a number of other Fujifilm cameras so it takes up quite a bit of space in the X Half. You get a massive 880 shots per charge though.

WHAT IS IT EXACTLY?

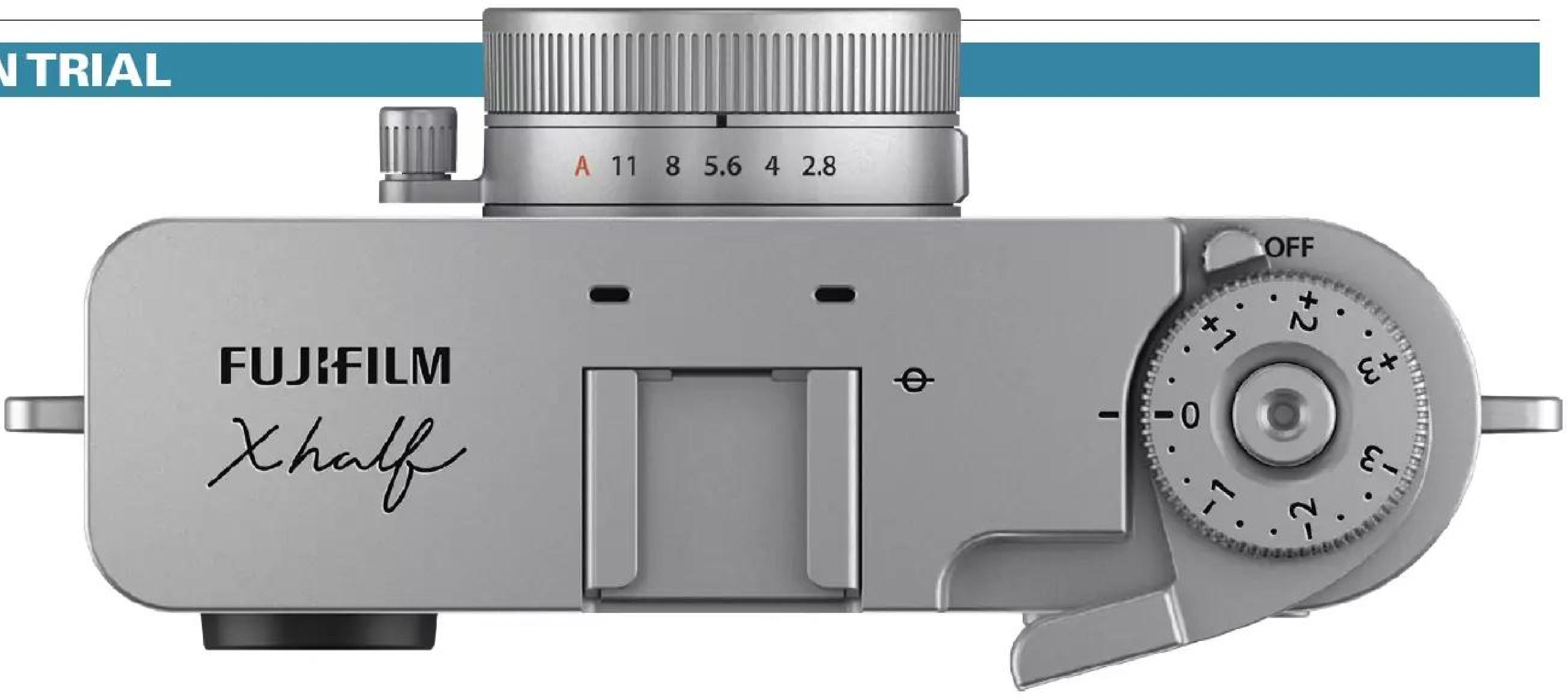
So what do we have here? Well, the X Half is certainly compact. In fact, it's tiny and quite similar in dimensions to the Olympus Pen series of half frame 35mm compacts from the 1960s. This is no coincidence, of course, because it's intended to be a digital 'half frame' camera with, in this case, a 13.3x8.8 mm 'Type 1' BSI-type CMOS with 2:3 aspect ratio and a resolution of 20 megapixels, but cropped to the 3:4 aspect which gives an imaging area of 11.7x8.8 mm. In other words, it's not actually half of anything in terms of the mainstream formats, so it's the aspect ratio that's important here and it also dictates the shapes of the viewfinder and the LCD monitor screen.

The reasoning is much the same as that behind the Pentax 17 which is that the vertical framing is the natural orientation of a smartphone so it's both familiar and comfortable to the people that Fujifilm is primarily targeting with the X Half. With the crop, the effective resolution is 17.74 megapixels which gives a maximum image size of 3648x4864 pixels. There's a choice of two smaller image sizes, but JPEG capture is your lot which, when you think about it, fits in well with the film camera ethos. You make all your settings choices in the camera and they can't be changed after the exposure has been made. The X Half's 'Film Camera' shooting mode takes this even further, but we'll get to this shortly. Similarly, regardless of how you use the camera, it's one shot at a time. You can, however, have two shots side-by-side in the same frame – Fujifilm is calling this a "2-in-1 Mode" – in which case the combined aspect ratio is 3:2 and the total image size is 7296x4864

▲ Lens is a 10mm f/2.8 prime which is equivalent to a 32mm wide-angle in the full frame format.

▲ It looks like a classic film advance lever and it has pretty much the same function when the X Half is in its 'Film Camera Mode'. You can't take another shot until you've flicked it to the right.

▲ Curiously, the X Half has a simple cold shoe accessory mount rather than a flash hotshoe.



▲ Are you looking at the top of a film camera here? Well, yes... and no.

pixels. It's how things would look if two consecutive 35mm half frame negatives were printed together onto a standard 6x4-inch postcard print.

The sensor size and the 3:4 crop combine to give a focal length magnification factor of around 2.94x so the 10.8mm f/2.8 fixed lens is equivalent to 32mm in full frame terms. The optical construction comprises six elements in five groups which includes three glass-moulded aspherical types to optimise sharpness across the frame. The minimum focusing distance is ten centimetres and the minimum aperture is f/11. Despite its very compact size, the lens still has an aperture collar which is adjustable in full-stop increments (but the auto adjustments are in one-third stops). It also has a manual focusing collar. There isn't a screwthread filter fitting or any provision for attaching a lens hood, but there's already a neat third-party solution from SmallRig using magnetic couplings. The lens cap simply pushes onto the front of the lens and there's a lanyard to secure it to one of the camera strap's lugs so it won't go AWOL.

FILM MODES AND MOODS

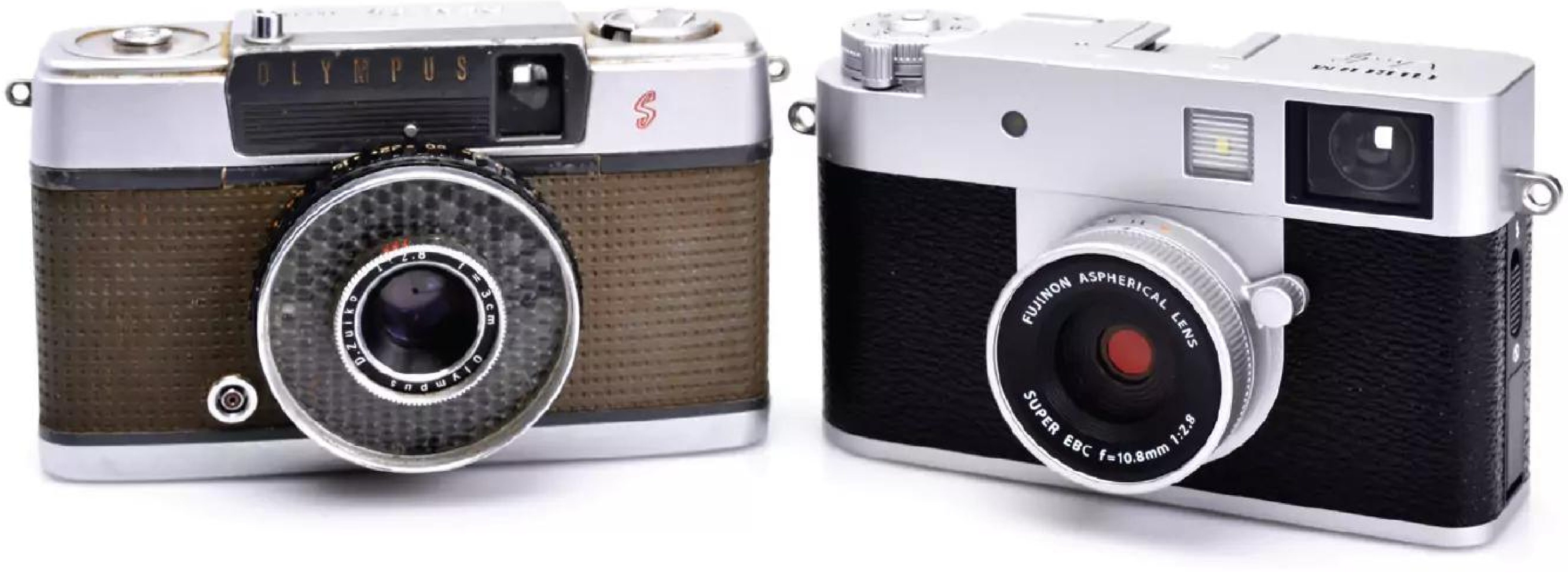
The 'Film Simulation' profiles are obviously an important aspect of the X Half story, but the choice is paired down to 13 – from the current list of 20 available on all Fujifilm's other latest generation cameras – with the emphasis on the ones that are directly related to actual film stocks. So, Velvia, Provia, Astia, Reala Ace, ACROS (along with the three contrast filter options) and Eterna are all here plus Classic Chrome, Classic Neg, Nostalgic Neg and Sepia. However, there are no adjustable parameters and the only supplementary processes are 'Grain Effect' and 'Portrait Enhancer' which looks to work much like the 'Smooth Skin Effect' we've seen elsewhere in the Fujifilm line-up.

There's a whole swag of 'Advanced Filter' special effects – a total of 19, in fact – but they can't be mixed with the 'Film Simulation' profiles even though some of them are film-like… notably Light Leak, Halation and Expired Film with the choice of green or red colour casts or neutral. Given all of these were things that you tried to avoid when really shooting film, this is perhaps straying into the realm of gimmickry, but then unwanted or unexpected outcomes were part and parcel of the film experience so Fujifilm is taking an "all-in" approach with the X Half.

The in-camera corrections have been pared right down to just long exposure noise reduction, although it's probably safe to assume that the camera is doing some lens corrections behind the scenes. There are no auto bracketing modes – not even for exposure – but, curiously, you do get manual colour temperature setting for white balance control. The auto WB adjustment is supplemented by seven lighting presets, but there are no shift adjustments which you would have thought would be easier of X Half users to understand than settings in degrees Kelvin and how they relate to colour balance.

Exposure control is via the standard choice of 'PASM' modes driven by multi-zone metering using 256 measuring points and with an AE lock and +/-3.0 EV of compensation provided as the overrides. Again, Fujifilm is keeping things simple so there are no alternative metering patterns and no sensor shutter to supplement the physical one which is a leaf-type mechanism in the lens. Its speed range is 15 minutes to 1/2000 second, but there's no 'B' timer if you did want longer exposure times. While the lens has an aperture collar for the manual selection of apertures, there isn't a shutter speed dial so manual selection is via the camera's touch screen which isn't quite as intuitive.

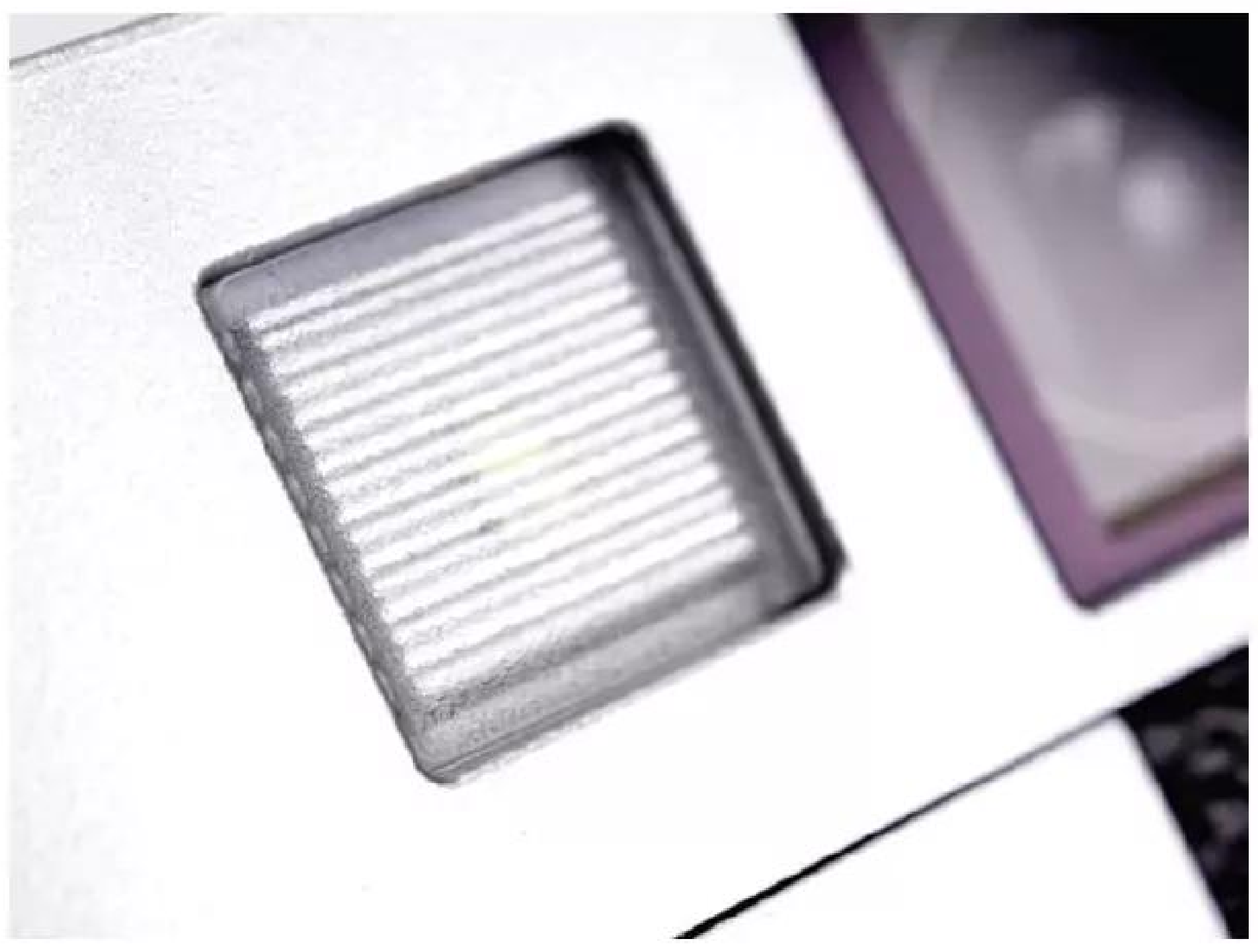
The native sensitivity range, by the way, is equivalent to ISO 200 to 12,800, and with no extensions. Three Auto ISO ranges are available with top limits of ISO 800, 3200 or 12,800.



◀ X Half is essentially a digital half frame camera and so sized very similar to a 35mm model such as Olympus's Pen EE from the early 1960s.

STILL
MOVIE
PLAY

▲ Rear panel controls comprise a still/movie switch and a button for replay/review. That's it.



▲ Built-in flash is actually an LED which also serves as a continuous light source when shooting video.

▲ Optical viewfinder is a simple Galilean type, and it's quite small.

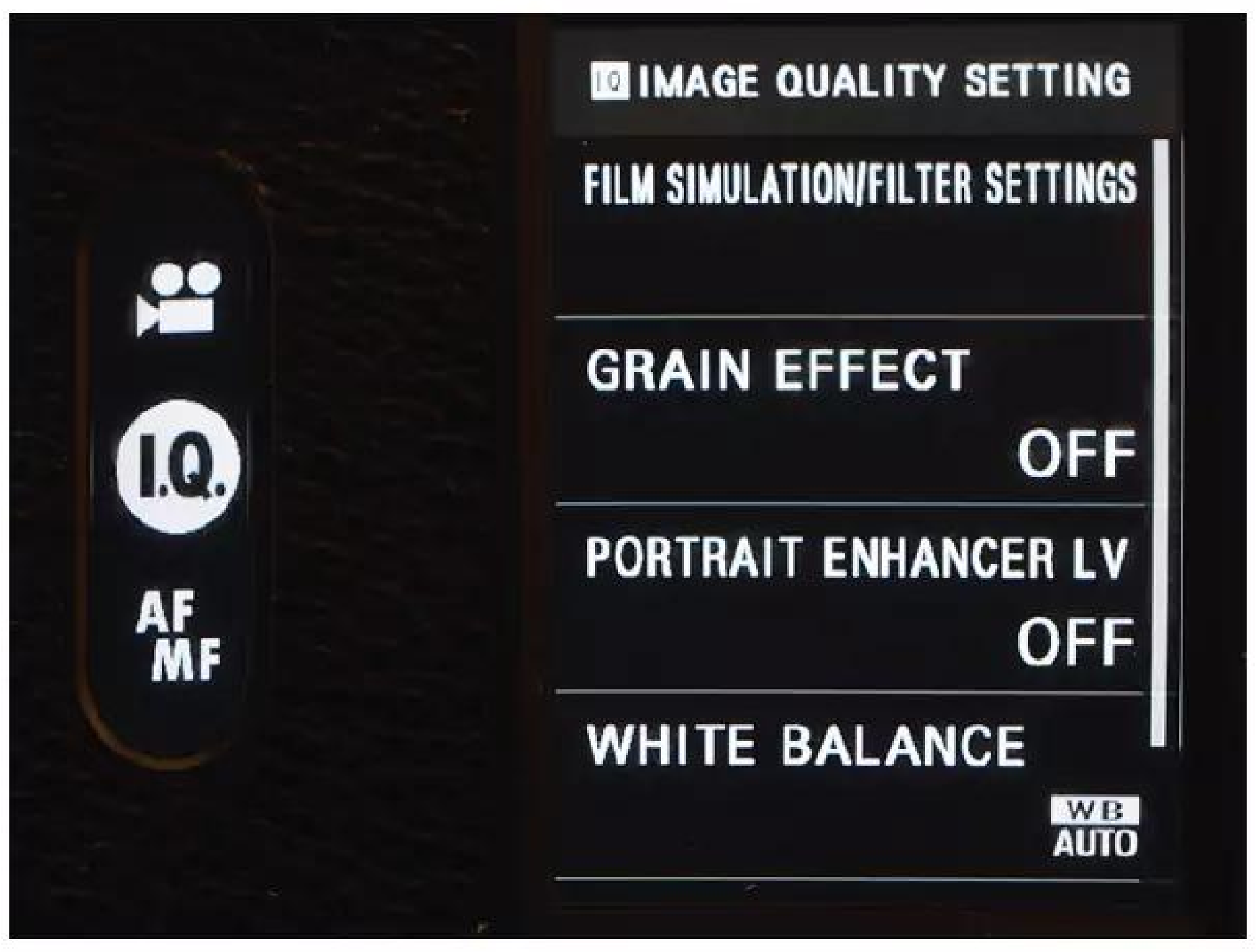
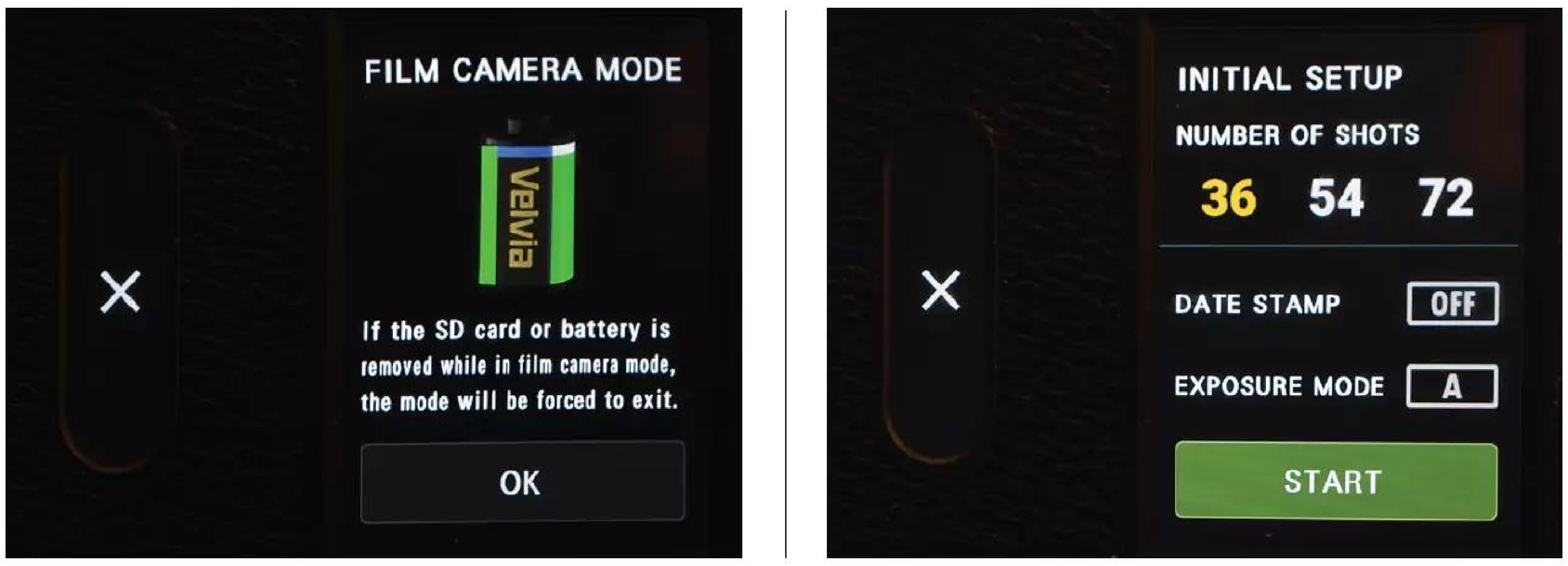


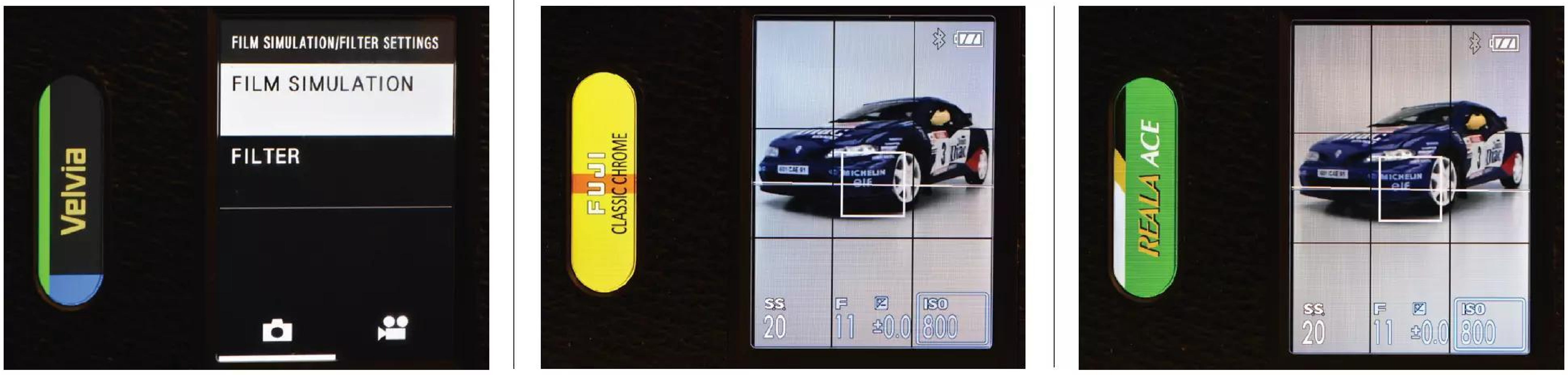
IMAGE QUALITY SETTING
FILM SIMULATION/FILTER SETTINGS
GRAIN EFFECT OFF
PORTRAIT ENHANCER LV OFF
WHITE BALANCE AUTO

▲ Simplified main menu system has function icons in the sub screen – you scroll up or down – and settings in the main monitor.

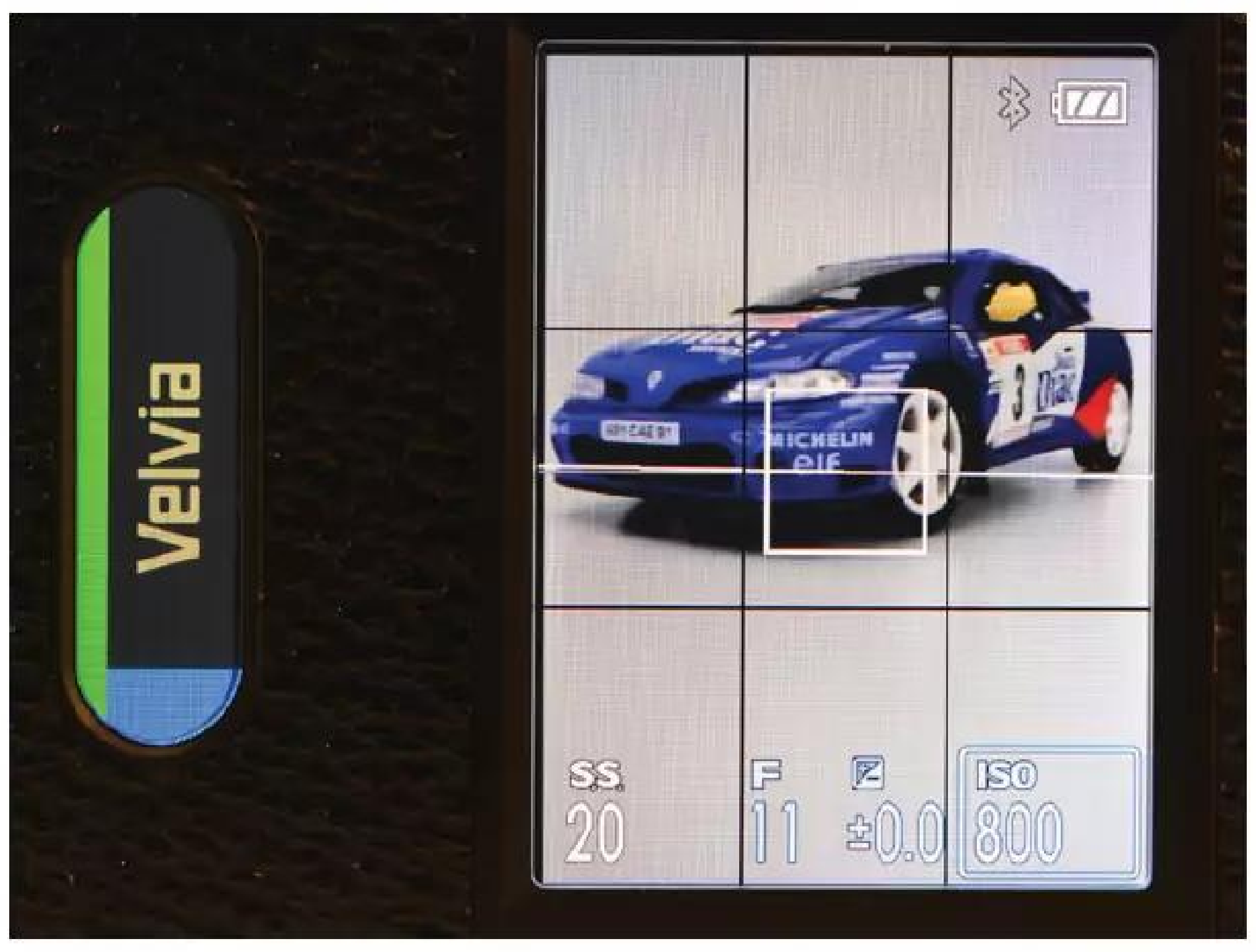

FILM CAMERA MODE
If the SD card or battery is removed while in film camera mode, the mode will be forced to exit.
OK

INITIAL SETUP
NUMBER OF SHOTS 36 54 72
DATE STAMP OFF
EXPOSURE MODE A
START

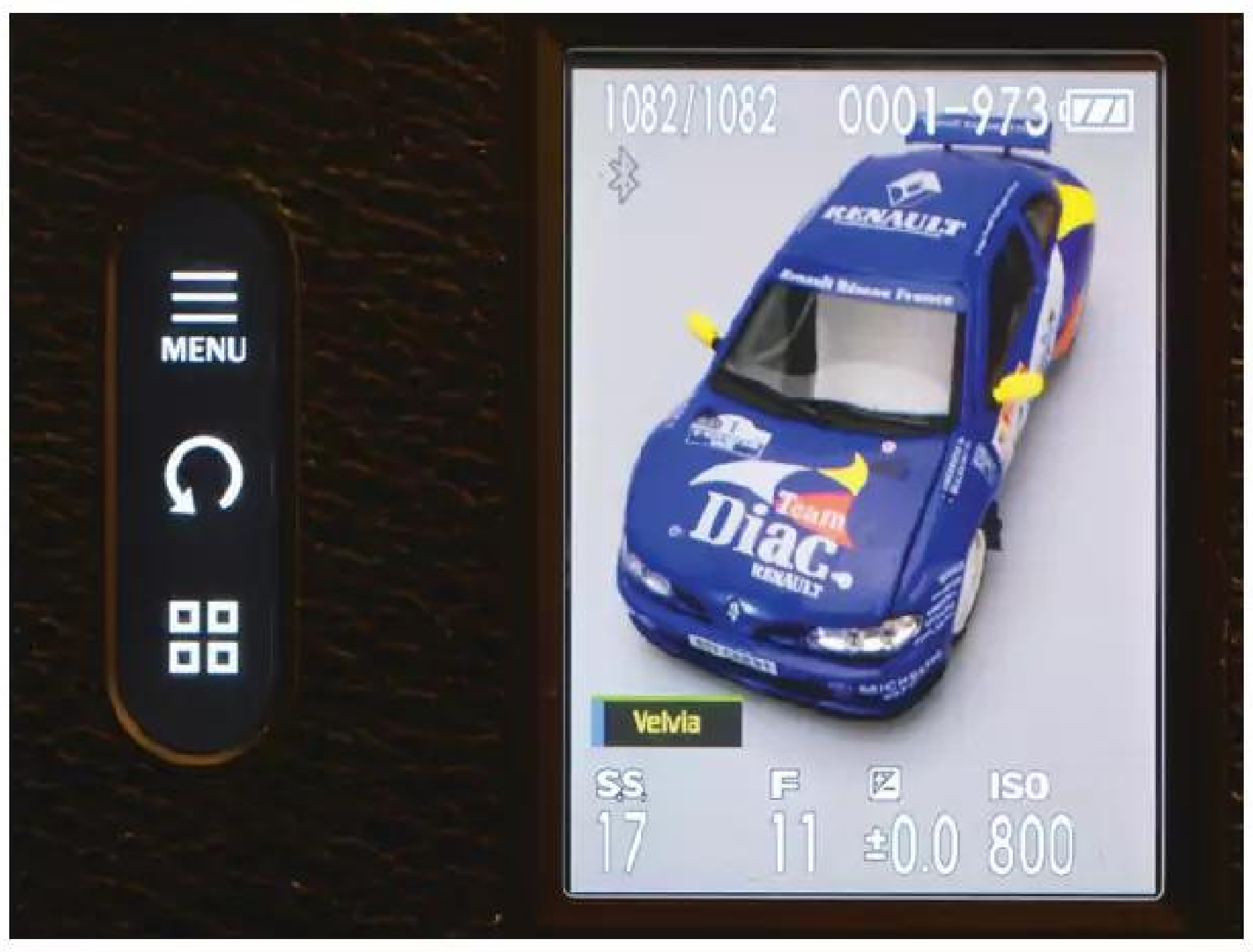
▲ 'Film Camera Mode' engages a film-like shooting experience so, once set up (the equivalent of loading the film), many items can't be changed 'mid-roll'.


FILM SIMULATION/FILTER SETTINGS
FILM SIMULATION
FILTER

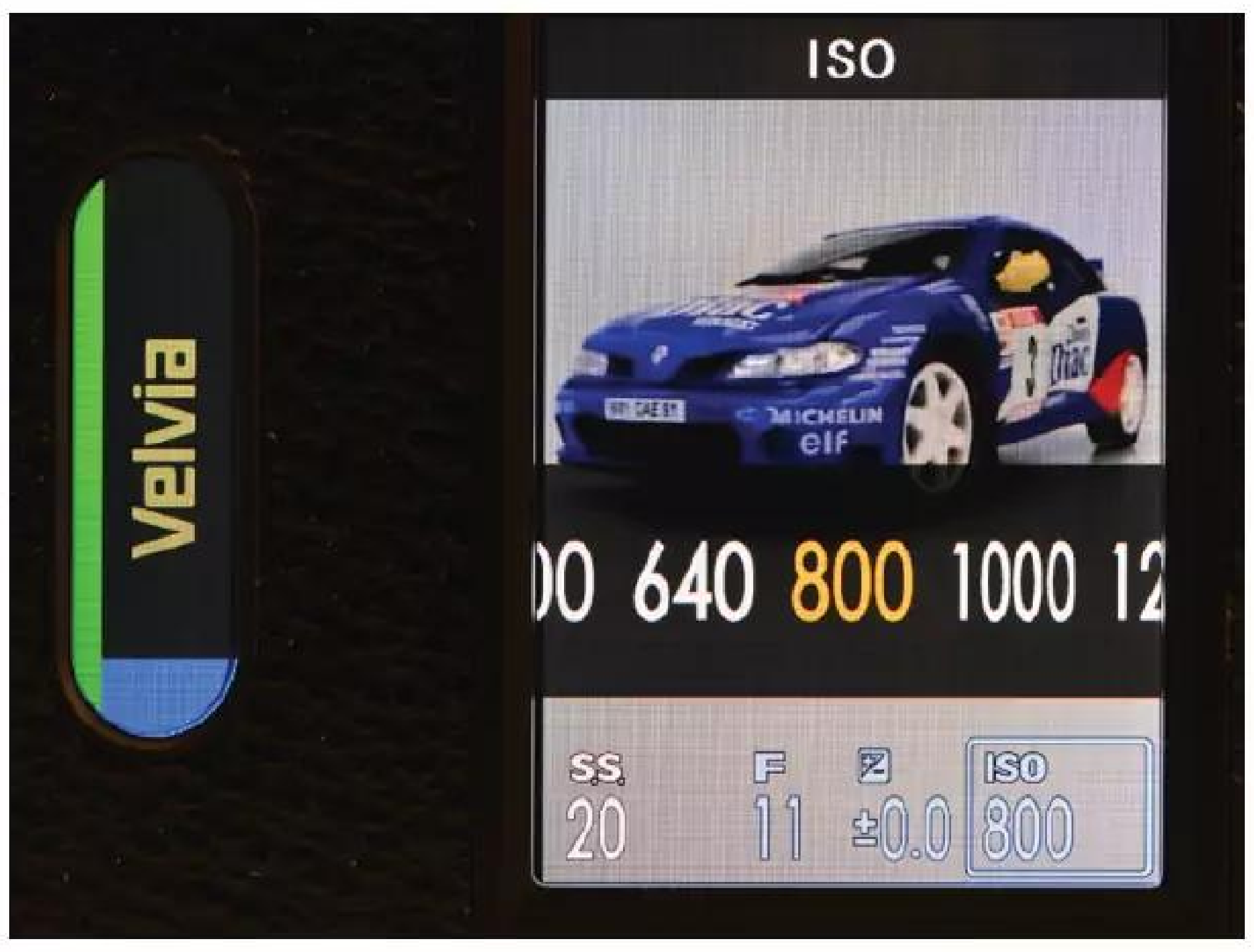
▲ There's a choice of 13 'Film Simulation' profiles and the sub screen on the camera back then mimics a film ID window. Popular profiles such as Velvia, Reala Ace and Classic Chrome are included.



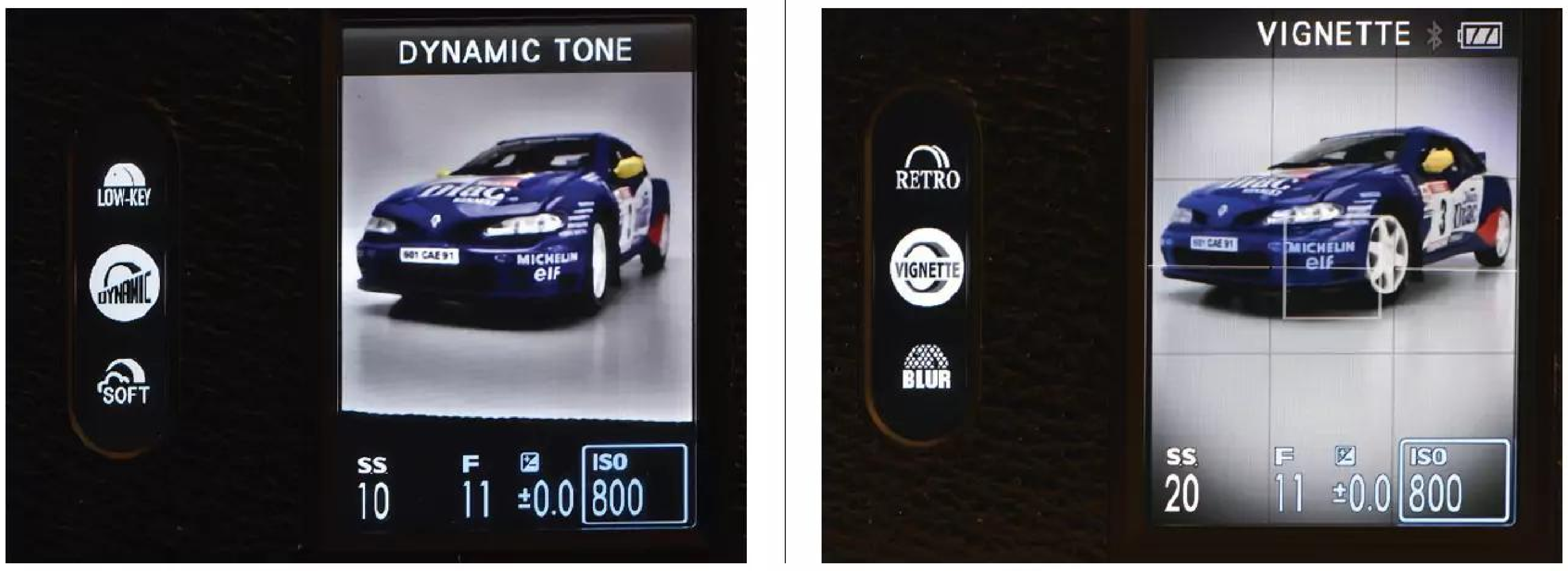
▲ Live view screen includes a 3x3 grid guide, single-axis level indicator and basic capture info.



▲ Replay/review also uses a combination of the main monitor display and the sub screen for selecting menus and editing functions.



▲ The majority of settings – such as sensitivity and shutter speeds – are adjusted in the touch screen.



▲ There's a total of 19 'Advanced Filter' effects and shown here are Dynamic Tone and Vignette as previewed in the live view display.

There's a built-in flash, but it's a tiny LED and not especially useful other than at the closest focusing distances. A little mysteriously, there's only a cold shoe accessory mount so you're going to have to get inventive if you want to use an accessory flash… presumably the LED could act as a slave trigger. And you could, of course, fit a bigger and brighter LED light.

The X Half's autofocusing is back to the Dark Ages with contrast-detection only and a total of nine measuring zones covering the middle of the frame. You can switch between the single central point or the 3x3 points cluster and there's face/eye detection with the choice of right- or left-priority for the latter. Alternatively, as noted earlier, you can focus the lens manually in which case there's a focus peaking display – in a choice of four colours – along with a distance scale to guide you.

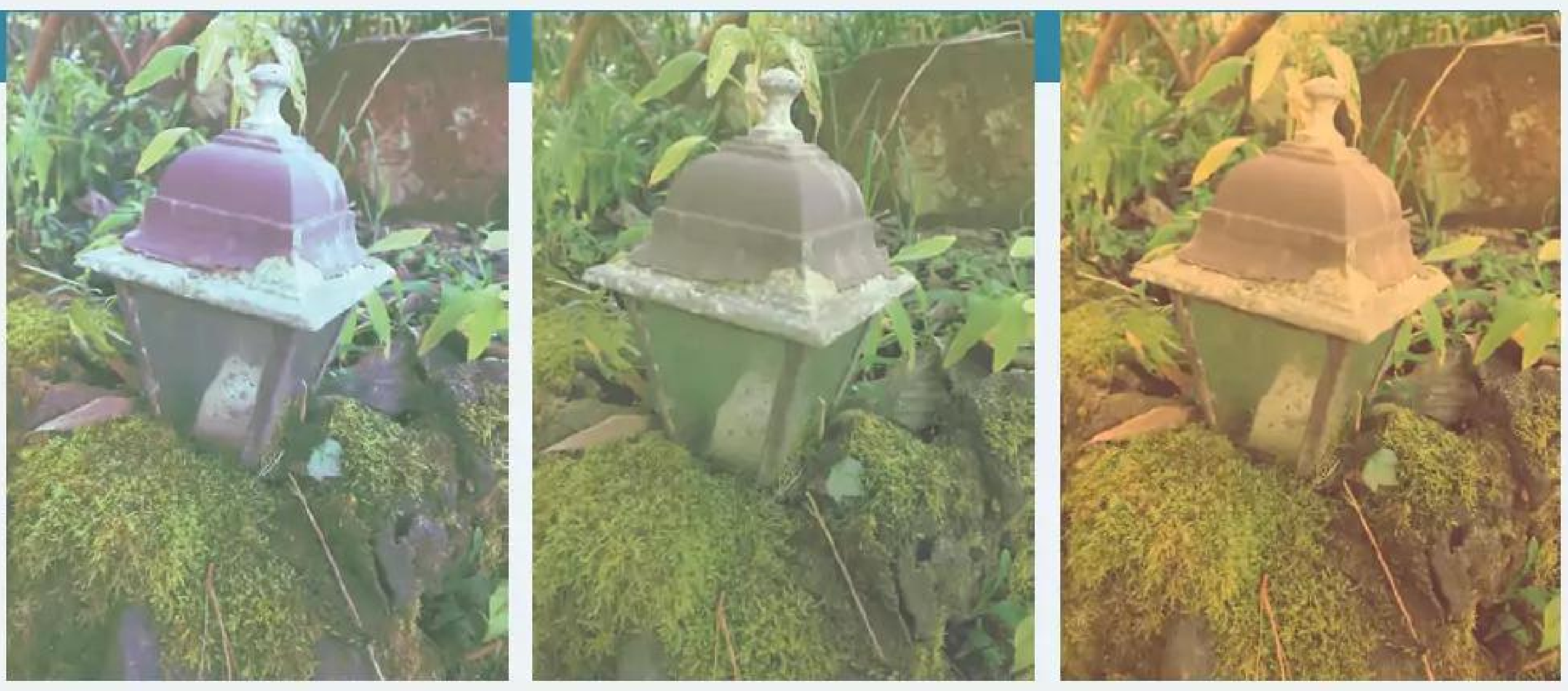
IN THE HAND

It's hard to appreciate just how tiny the X Half is until you actually see it in the flesh. It seems – even in this mirrorless era – cameras in general have been getting bigger and bulkier, and with new compacts having been few and far between, the X Half's size is actually a bit of a shock at first. Built mainly of polycarbonate, it's also super-light at a shade under 200 grams before you load up the battery. It's the same NP-W126S power pack that's currently used in the X-E5, X-M5 and X100VI so it's a big battery – both physically and in capacity – for such a small camera and it pumps the weight up to 240 grams, but you get a massive 880-odd shots from a charge which is phenomenal. There isn't any weather sealing.

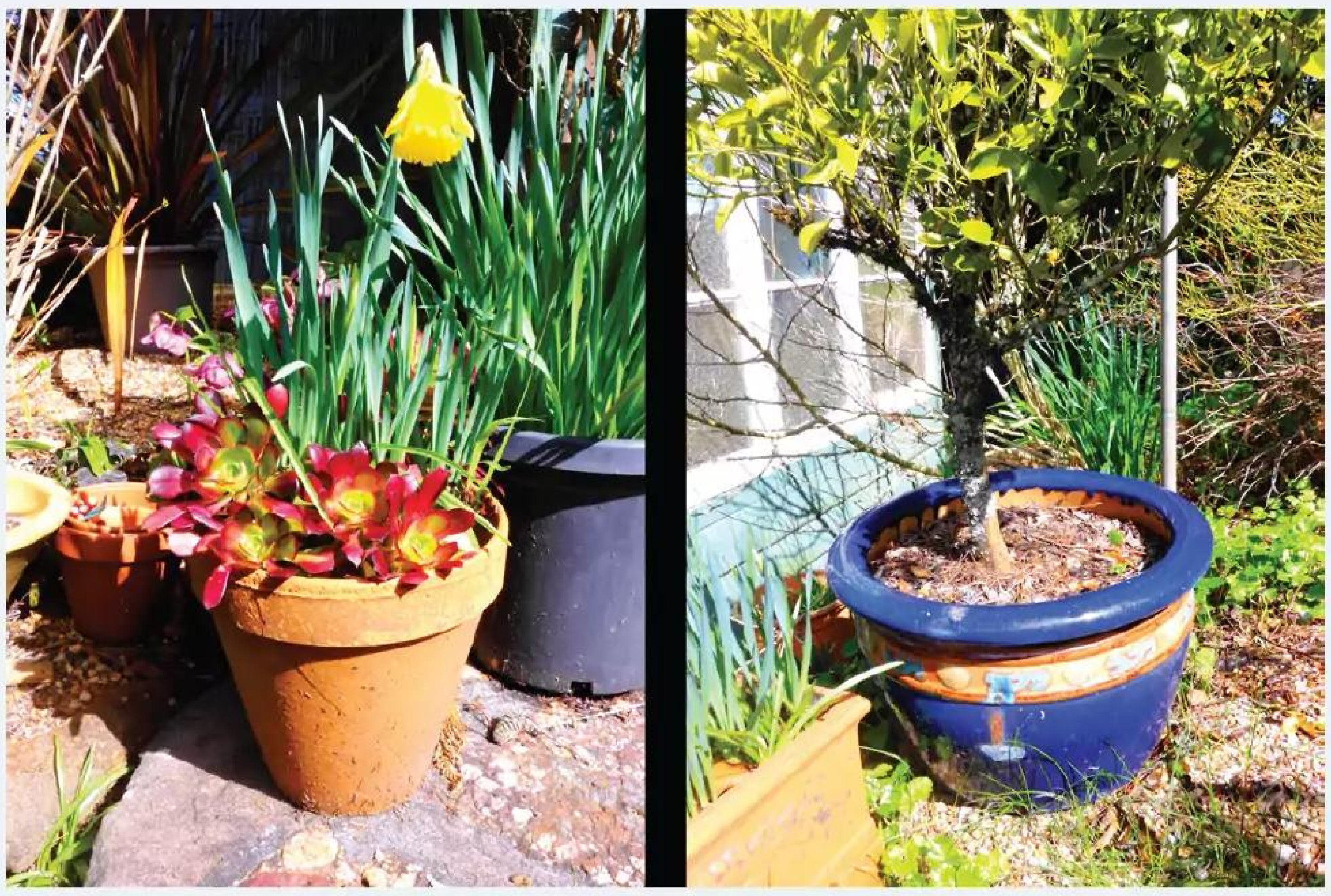
Externally, the film camera theme is

EST 1863
OLD TOWN
CLOCKS
LONDON

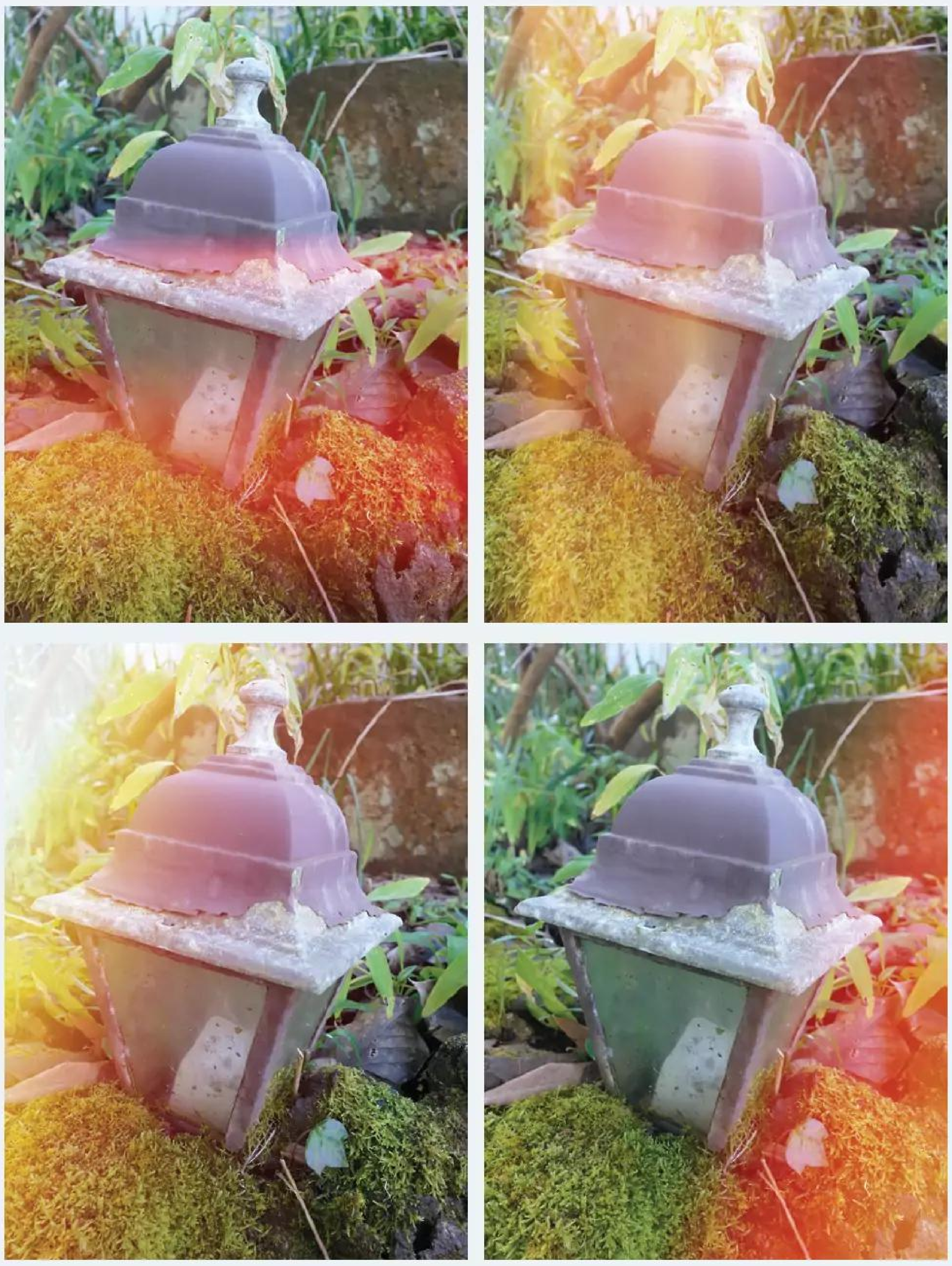
Test JPEG/large images taken using the Velvia/Vivid and Classic Chrome 'Film Simulation' presets, with shutter-priority auto exposure control at ISO 400 or ISO 800. There's a good level of detailing along with smooth tonal gradations and a reasonably wide dynamic range. Even though there are no adjustable parameters for the 'Film Simulation' profiles, the X Half's choice of 13 of the key ones provides plenty of scope for creating different looks.



▲The 'Advanced Filter' effects include things that could to go wrong when shooting film. The Expired Film setting replicates the loss of dynamic range that comes with aging and there's the choice of neutral, green or red effects.



▲The '2-in-1' framing function creates a diptych and it can be quite fun combining two images that are visually related in some way... or not. The border line can be varied in thickness and both images are also recorded separately. You can also create these post-camera in the X Half app, using images taken previously.



▲The Light Leak effect is random and so can't be previewed... you get what you get. As shown here, each shot will be different.

ISO 200

ISO 400

ISO 800

ISO 1600

ISO 3200

ISO 6400

ISO 12800

TEST IMAGES – ISO RANGE

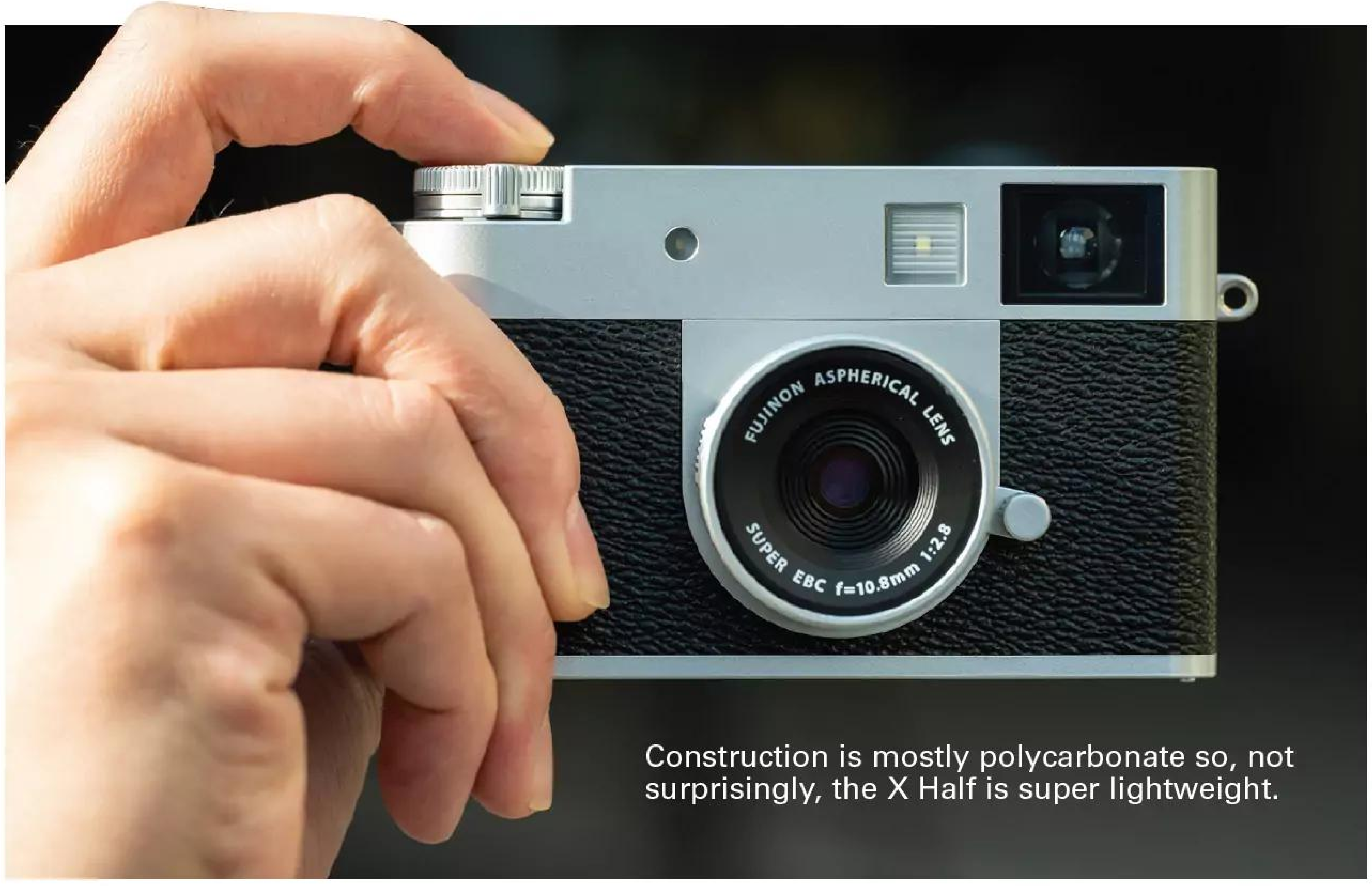
The X Half sensor's native sensitivity range spans ISO 200 to 12,800 with no extensions. Noise levels are low up to ISO 3200, but the noise reduction processing at ISO 6400 and 12,800 results in small reductions in both colour saturation and overall sharpness. These test images – obviously in-camera JPEGs as there's no other option – are taken in the aperture-priority auto exposure mode with the aperture set to f/11 so the exposure time varies to compensate for the adjustments to ISO. Long Exposure noise reduction is switched off.

emphasised by what appears to be a frame advance lever, likewise an oval-shaped film identification window set into the back panel and the optical viewfinder. It is only an optical finder – so no hybrid electronic wizardry as on the X100 or X-Pro series models – and it's quite small with a low 0.38x magnification and roughly a 90 percent scene coverage so you always get a bit than you bargained for in a frame. The 'film window' is, in fact, an LCD touch screen which works alongside the main monitor. The advance lever is actually an advance lever albeit only a 'virtual' one, but in the 'Film Camera Mode', you have to use it to essentially reset the camera after a shot so you can take another one. Otherwise, it's also used to enable the '2-in-1' framing – which, incidentally, can also combine two videos or a still frame with a video clip – and the action is exactly the same as on a film camera with a manual transport (i.e. it springs back automatically after being used). The shutter release button looks like it incorporates a cable-release socket, but it actually isn't and instead just allows for a soft release to be fitted. It's another little idiosyncrasy because surely the filmic X Half would be just the camera to suit a cable release?

> THE 'FILM SIMULATION' PROFILES ARE OBVIOUSLY AN IMPORTANT ASPECT OF THE X HALF STORY, WITH THE EMPHASIS ON THE ONES THAT ARE DIRECTLY RELATED TO ACTUAL FILM STOCKS."

There are no conventional menus as such – nor, in fact, many other physical controls – so it's all about the touch screens. You switch between the main functions by swiping in the main monitor – up, down, left or right – and then the smaller panel serves as the back button by displaying an 'X'. With the camera's main menu, it displays the function headings in a similar style to any other Fujifilm camera, but with the associated settings shown in the main screen. This works because there aren't a lot of settings for anything so, in fact, only a couple of screens – i.e. the menu pages – need to be scrolled up or down so you can see everything. When shooting, the sub panel shows either the selected 'Film Simulation' profile or the 'Advanced Filter' setting and, with the former, it does a very convincing impression of the ID window in a film camera back that allowed you to read details printed on a 35mm cassette. The main monitor can also display a simplified version of Fujifilm's 'Quick Menu' with just eight tiles, but as it does elsewhere, it allows quick access to these main functions which include the exposure modes, the AF modes, the white balance settings, image size and both the 'Grain Effect' and 'Portrait Enhancer' processing.

If you want to go all the way with the X Half's pretend film camera experience, swiping down on the main monitor enables you to access the 'Film Camera Mode'. This locks out the monitor screen so you have to use the optical finder for viewfinding and the images you take aren't available to look at until you've downloaded them to the dedicated X Half App for smartphones. This provides a 'contact sheet' – complete with virtual film sprocket holes – and then you can choose to 'develop' whichever frames you want. Also, as just noted, the camera won't take another shot until you wind on the advance lever. You're also locked into a



Construction is mostly polycarbonate so, not surprisingly, the X Half is super lightweight.

preselected exposure count – 36, 54 or 72 (this being a half frame camera, remember) – and either the 'Film Simulation' mode or a filter effect which subsequently can't be changed 'mid-roll' either. There's also the option of adding a film-style date stamp which uses characters that look just like they've been exposed onto a negative via LEDs.

Once you're shooting in the film mode, there's a dedicated info screen with touch controls and which includes a frame counter. You only have the choice of either program or aperture-priority exposure control. And, if you want to focus manually, you're pretty much on your own as the live view assists obviously aren't available, but instead there's four zone focusing settings which you simply tap on to set an approximate focus distance.

As noted a bit earlier, you're essentially committed in the 'Film Camera Mode' to complete the preset number of exposures sight-unseen until they're processed in the app. Of course, the 'roll' is still on the memory card – a standard-size SD device, by the way – and in its own folder – you just can't get to them until the end. That said, you can still bail out of the film mode 'mid-roll' by double tapping on the film window screen, but removing either the memory card or battery will also end the roll.

When you are using live view you can have a 3x3 guide grid and a single-axis level display plus a set of exposure read-outs – shutter speed, aperture, ISO and exposure compensation.

In replay mode, the LCD sub panel again shows the menu options – and serves as the return button – while the main screen executes the settings. The review options are fairly limited, but you do get a zoom function and a page of nine thumbnails which, given the screen size, is really as small as you can go. You can apply a star rating, filter types of images (such as the '2-in-1' frames), create a slide show or send images directly to an Instax Link instant printer directly from the camera. In addition to Bluetooth, there's WiFi connectivity in both the 2.4 GHz and 5.0 GHz bands. The X Half app – which is essentially a dedicated version of Fujifilm's X App – is an integral part of the camera's film mode experience and serves as a virtual darkroom in your smartphone. After you've 'processed' these images, it also offers various editing functions including creating '2-in-1' frames post-camera or swapping existing pairs around. The sole physical connect is a USB C which allows for in-camera battery recharging and the X Half comes with a USB C dongle for attaching a set of headphones when shooting video.

SPEED AND PERFORMANCE

As we've already noted, the X Half goes as fast as you can continually press the shutter button, but then it's really not about speed, but slowing down to a more contemplative pace… which you're forced to do in the 'Film Camera Mode' with its individual shot advance requirement.

While this camera is more about photography than anything else, it's not specifically aimed at photographers… at least not those more experienced and with experience of more capable cameras using the latest technologies. We say this to put the autofocusing performance, in particular, but also the image quality into perspective. Of course, not so long ago, contrast-detection AF was all we had and 18 megapixels worth of resolution was luxury. The autofocusing works well enough in many situations, but with the need to mindful of the smallish active area and the comparative slowness of the contrast-detection methodology.

The resolution is enough to ensure a good level of detailing in the biggest JPEGs along with smooth tonal gradations, but the X Half isn't ultimately about absolute image quality because there's so much scope for creating visual effects in-camera… even film-type blemishes and deficiencies. It's more about the look than anything else, and

MAKING MOVIES

The X Half's video capabilities are very much dictated by how Fujifilm envisages the camera will be used… namely for clips for social media – such as on Instagram or TikTok – which will mostly be viewed in the vertical on a smartphone and are small files. So, like with the stills, the aspect ratio is 3:4 with a resolution of 1080x1440 pixels which Fujifilm labels "Full HD", but which obviously isn't when it's cropped to get the 9:16 aspect required by many platforms. These applications have also presumably dictated a clip length of just 60 seconds.

There's the choice of MOV or MP4 formats – both the MPEG 4 AVC/H.264 codec and LongGOP compression. You can switch between bit rates of 50, 20 or 10 Mbps, depending on how much quality you really need. The main recording speed is 24 fps, but there's a 2x slowmo option of 48 fps plus also 28 fps and 36 fps. At 48 fps the clip length is reduced to 30 seconds. The '2-in-1' framing mode is also available for combining two videos or a still with a video clip, and with the choice of 3:2 or 1:1 aspect ratios.

The X Half has built-in stereo microphones, but there's no option for connecting an external input… although the camera is supplied with a USB C dongle so you can use monitoring headphones and with adjustable volume. However, the built-in mics have auto/manual levels adjustment, a level limiter, a wind-cut filter and a low-cut filter. Nevertheless, if want something better, you'll have to use an external recorder and sync everything in post.

On the creative side, you can use all the 'Film Simulation' profiles and 12 of the 'Advanced Filter' effects including Retro, Light Leak and Expired Film. Both 'Grain Effect' and 'Portrait Enhancer' are also available, and you can shoot in any exposure mode. There's no stabilisation options, but obviously the X Half is small enough and light enough to be used on any compact gimbal.

As with shooting stills, the X Half's video specs don't really mean much because if you're buying it for the intended key application, it does everything you'll need and that's all there is to it.

also it's likely that many of these pictures will be primarily intended for social media or feeds or be output as Instax Mini size prints. Nevertheless, there's certainly enough in the bigger files to allow for much larger reproductions. The 'Film Simulation' profiles work as well here as they do across the Fujifilm digital camera family, but not surprisingly, the sensor doesn't have quite the same high-ISO performance and, with only JPEGs available, you have to live with the effects on image quality of the more aggressive noise reduction processing at the highest sensitivity settings.

It has to be said that if you're someone who obsesses about specifications then the X Half probably isn't for you, but it certainly has enough capabilities to work well as a nifty little point-and-shoot camera. But better still, there are enough manual controls for you to do something more if you want to… up to a point at least.

THE VERDICT

As we noted with Sigma's BF, because it's so different in both its feature set and its functionality, the X Half demands a change of mindset and it can take a while to get used to how it works. Of course, you don't need to go near the 'Film Camera Mode' if you think it's just too restrictive – it's really more about an experience than anything else – in which case it's mostly all about learning the touch controls and the roles of the sub monitor. After a little while, you start to enjoy it and it doesn't take too much longer before you're diving in what can be achieved with the 'Film Simulation' profiles and the 'Advanced Filter' effects… curiously, probably more so than you feel compelled to do with one of Fujifilm's more 'serious' cameras. The smallness of its size is also a big plus and the simple, but classical styling has both character and charm.

Nevertheless, it's still safe to say that this camera has a very particular appeal which is primarily to people who want to take pictures for the sheer fun of it – and have some fun in the process – rather than for a specific purpose. More generally, that Fujifilm has seen fit to make a camera like the X Half is to be heartily commended and suggests there's a lot more fun things to come.

VITAL STATISTICS

FUJIFILM X-HF1 'X HALF' $1,349

body only,
recommended retail price

Type: Fixed prime lens digital 'half frame' compact camera with optical eyelevel viewfinder.

Lens: Fujinon Super EBC 10.8mm f/2.8 (equivalent to 32mm). Six elements in five groups (including three glass-moulded aspherical types). Aperture range is f/2.8 to f/11 manually adjustable in one-stop increments, auto adjustment in one-third stop increments. No filter screwthread or lens hood fittings.

Viewfinder: Reverse Galilean optical type with 0.38x magnification and 90 percent frame coverage. Colour-coded LED indicator for camera status. Fixed 6.1 cm LCD monitor (0.92 megadots resolution) with touch screen controls. Sub LCD colour 'film window' display with swipe touch controls. Monitor automatically switches off when the OVF is in use. Main monitor is adjustable for brightness, colour saturation and colour balance.

Focusing Type & Range: TTL contrast-detection measurement. Nine measuring points. Single-point and 3x3 points area modes with nine positions in the frame. Distance range is 10 cm to infinity. Face/eye detection with left/right eye priority. Manual switching between one-shot and continuous AF modes. Manual focus assists via distance scale, focus peaking display (white, red, blue or yellow). AF assist illuminator. Sensitivity range not quoted.

Shutter Type & Speeds: Electronically-controlled leaf type 900-1/2000 second.

Metering: Multi-zone using 256 measuring segments.

Exposure System: Program, aperture/shutter-priority auto and manual. Up to +/-3.0 EV exposure compensation and an AE lock.

Sensor: 13.3x8.8 mm ('Type 1' format with 2:3 aspect ratio, but cropped to the 3:4 aspect and 11.7x8.8 mm imaging area), BSI CMOS, 17.74 megapixels (effective).

Sensitivity: ISO 200 – 12,800. Three Auto ISO ranges.

Formats/Resolution: JPEG capture only with 24-bit RGB colour.

- Three resolution settings at 3:4 aspect ratio; 3648x4864, 2160x2880 and 1080x1440 pixels.
- Three resolution settings at 1:1 aspect ratio: 4864x4864, 2880x2880 and 1440x1440 pixels.
- Three resolution settings at 1:1 aspect ratio ('2 in 1' frames); 7296x7296, 4320x4320 and 2160x2160 pixels.
- Three resolution settings at 3:2 aspect ratio ('2 in 1' frames); 7296x4864, 4320x2880 and 2160x1440 pixels.

Video Recording:

- MOV format with 8-bit 4:2:0 colour (MPEG 4 AVC/H.264 codec with LongGOP compression) at 1080x1440 pixels (Full HD) at 24, 28, 36, 48 fps (50, 20 or 10 Mbps) and 3:4 aspect ratio.
- At 1440x1440 pixels (Full HD) at 24, 28, 36, 48 fps (50, 20 or 10 Mbps) and 1:1 aspect ratio.
- At 2160x2160 pixels (Full HD) at 24, 28, 36, 48 fps (50, 20 or 10 Mbps) and 1:1 aspect ratio ('2 in 1' framing).
- At 2160x1440 pixels (Full HD) at 24, 28, 36, 48 fps (50, 20 or 10 Mbps) and 3:2 aspect ratio ('2 in 1' framing).
- MP4 format with 8-bit 4:2:0 colour (MPEG 4 AVC/H.264 codec and LongGOP compression) at 1080x1440 pixels (Full HD) at 24, 28, 36, 48 fps (50, 20 or 10 Mbps) and 3:4 aspect ratio.
- At 1440x1440 pixels (Full HD) at 24, 28, 36, 48 fps (50, 20 or 10 Mbps) and 1:1 aspect ratio.
- At 2160x2160 pixels (Full HD) at 24, 28, 36, 48 fps (50, 20 or 10 Mbps) and 1:1 aspect ratio ('2 in 1' framing).
- At 2160x1440 pixels (Full HD) at 24, 28, 36, 48 fps (50, 20 or 10 Mbps) and 3:2 aspect ratio ('2 in 1' framing).

Audio: Built-in stereo microphones with auto/manual levels adjustment, limiter, wind-cut filter and low-cut filter. Headphone output adapter for USB C connector supplied. Adjustable headphone volume.

Video Features: Program, aperture-priority auto, shutter-priority auto or manual exposure modes; adjustable self-timer delay (three, five or ten seconds), rear tally lamp, red frame recording indicator (green for slowmo recording).

Continuous Shooting: Single frame capture only.

Flash: Built-in LED type.

White Balance: Auto correction and seven lighting presets. Manual colour temperature setting from 2500 to 10,000 degrees Kelvin.

Storage: SD/SDHC/SDXC memory cards with UHS-I speed support.

Interface: USB 2.0 (Type C).

Additional Features: 'Film Camera' shooting mode using the 'frame advance lever', (36, 54 or 72 frame rolls; date stamp on/off, exposure mode), '2-in-1' sequential diptych shooting mode (for stills and movie clips), 13 'Film Simulation' profiles (Provia/Standard, Velvia/Vivid, Astia/Soft, Classic Chrome, Classic Neg, Reala Ace, Nostalgic Neg, Eterna/Cinema, ACROS, ACROS+Yellow, ACROS+Red, ACROS+Green, Sepia), 'Grain Effect' processing (Roughness –Strong, Weak, Off. Size – Large or Small), 19 'Advanced Filter' effects (Toy Camera, Miniature, Pop Colour, High-Key, Low-Key, Dynamic Tone, Soft Focus, Partial Colour – Red, Orange, Yellow, Green, Blue or Purple), Light Leak, Halation, Expired Film (Green, Red, Neutral), Canvas, Retro, Vignette, Blur, Fisheye, Colour Shift, Mirror, Double Exposure), 'Portrait Enhancer' LV (Strong, Medium, Weak, Off), long exposure noise reduction (On, Off), dual-delay self-timer (two or ten seconds), cold shoe accessory mount, single-axis electronic level display, grid guide (3x3), shutter activation counter, date stamp function, slide show, adjustable sound settings (AF, self-timer, operations, shutter release, video record start/stop), in-camera editing functions (Erase, Protect, Rating, Filtering, 1:1 Frame Combiner, Instax Print), Activity Record, WiFi (2.4 or 5.0 GHz bands) and Bluetooth LE 4.2 wireless connectivity. Direct printing to Instax Link mini printers.

Power: Rechargeable 7.2 volts, 1200 mAh lithium-ion battery (NP-W126S type). In-camera battery recharging via USB-C.

Dimensions (WxHxD): 105.8x64.3x45.8 mm.

Weight: 191 grams (without battery or memory card).

Price: $1349. Available in either black, silver or charcoal. The X Half is backed by a three-year warranty when purchased from an authorised Fujifilm Australia reseller.

Distributor: Fujifilm Australia, telephone (02) 9466 2600 or visit www.fujifilm.com.au

HASSELBLAD XPAN

These are the cameras that, in one way or another, had a significant influence on photographers and photography. The XPan didn't change the world, but it changed the way we saw the world and is still a highly sought-after cult camera to this day.

It's telling that, nearly 20 years after production of the 35mm Hasselblad XPan ended, Fujifilm's exceptional GFX100RF fixed lens medium format digital camera pays homage with its panoramic 65:24 aspect ratio setting. The link, of course, is that the XPan was really a Fujifilm camera, the TX-1, and agreement was that this model would be sold only in Japan, leaving the Swedes with the rest of the world.

With its comparatively compact size and big "33x44" sensor, the GFX100RF has perhaps become the nearest thing to the 'digital XPan' that everybody was yearning for as 35mm film's glory days became clearly numbered. The 65:24 aspect represents an imaging area 44x16 millimetres on the Fujifilm camera's 102 megapixels sensor and a healthy 50 MP of resolution at the lens's 28mm-equivalent focal length, but there's also the option of applying further crops at to give, effectively, 35mm, 50mm and 63mm. And even at the heaviest crop, the resolution is still a useable 10 MP.

> "Notably, the XPan extended the creativity of the panorama format into many more applications beyond landscapes, such as photojournalism and sports."

The XPan was an interchangeable lens camera, but there were only ever three lenses to choose from and a great many users stuck with the 'standard' 45mm f/4.0 prime which was equivalent to a 25mm on the 24x65 mm frame. The short telephoto 90mm f/4.0 – equivalent to 50mm – was arguably less versatile and the later 30mm f/5.6 aspherical ultra-wide – which equated to a 17mm – was prohibitively expensive. The XPan's 'double 35mm' format was its unique feature and made it bigger than a conventional 35mm rangefinder design, but not by a significant amount and, handily, it could be switched to take 24x36mm frames at any point on a roll. If you stuck with shooting only panoramas, you got 20 frames from a 36-exposure length of 35mm film.

Hasselblad's first ever 35mm camera, the XPan was launched in August 1998 and although a manual focus model, was largely automated everywhere else including exposure control, ISO setting (via the DX code system) and a motorised film transport. It was considered too expensive to go down the autofocus route as the XPan lenses were essentially medium format designs in order to obtain a wide enough imaging circle. The mid-roll format switching was made by prewinding the film immediately after it is loaded so it was then essentially exposed 'in reverse' so only the last bit of leader needed to be wound back into the cassette at the end. An important advantage of this arrangement is that if the camera back is accidentally opened – which was actually possible to do unthinkingly with the XPan – all the exposed frames were safely tucked away in the cassette. The camera's frame counter also went in reverse.

The XPan had TTL-OTF centre-weighted average metering backed either aperture-priority auto or manual exposure control. The overrides for the former included an AE lock, up to +/-2.0 EV of compensation and auto bracketing over three frames (in both formats). A metal-bladed focal plane shutter delivered a speed range of 8-1/1000 seconds with flash sync up to 1/125 second. External flash units were synched via a hotshoe or a PC terminal, but the system never included a dedicated flash. Continuous shooting was possible at 1.2 fps in the single frame mode and 0.9 fps in the double frame mode.

The camera's construction employed a combination of aluminium and titanium with a shallow rubberised handgrip on the 'Blad, a wooden one on the Fujifilm TX-1 (which, incidentally, could be interchanged).

Given its size, automation and comparative pricing, the 35mm XPan made panorama photography a whole lot more accessible and certainly much more convenient compared to using the dedicated rollfilm cameras around at the time such as Fujifilm's own 6x17mm format GX617. It was also a lot cheaper to run – you get just four 6x17cm frames from 120 rollfilm. Notably, the XPan extended the creativity of the panorama format into many more applications beyond landscapes, such photojournalism and sports.

The updated XPan II model arrived in April 2003 and it was sold in Japan as the Fujifilm TX-2. Apart from some variations in finishes, there were no differences between the different branded versions, but there were many improvements over the first model, including the addition of shutter speed read-outs in the viewfinder, a complete redesign of the exposure compensation selector (too easily miss-set previously), a multiple exposure facility and an additional two-second delay setting for the self-timer. XPan II and TX-2 production ended in January 2006, but desirability factor appears undiminished with second hand prices now often exceeding – and by a significant margin in some cases – what either generation model cost when new. Rarity adds a premium to the Japan-only Fujifilm cameras so the later TX-2 is arguably the most desirable model to have, but any of them are a pure joy to own and use.

Photo: Seiichi Nakamura

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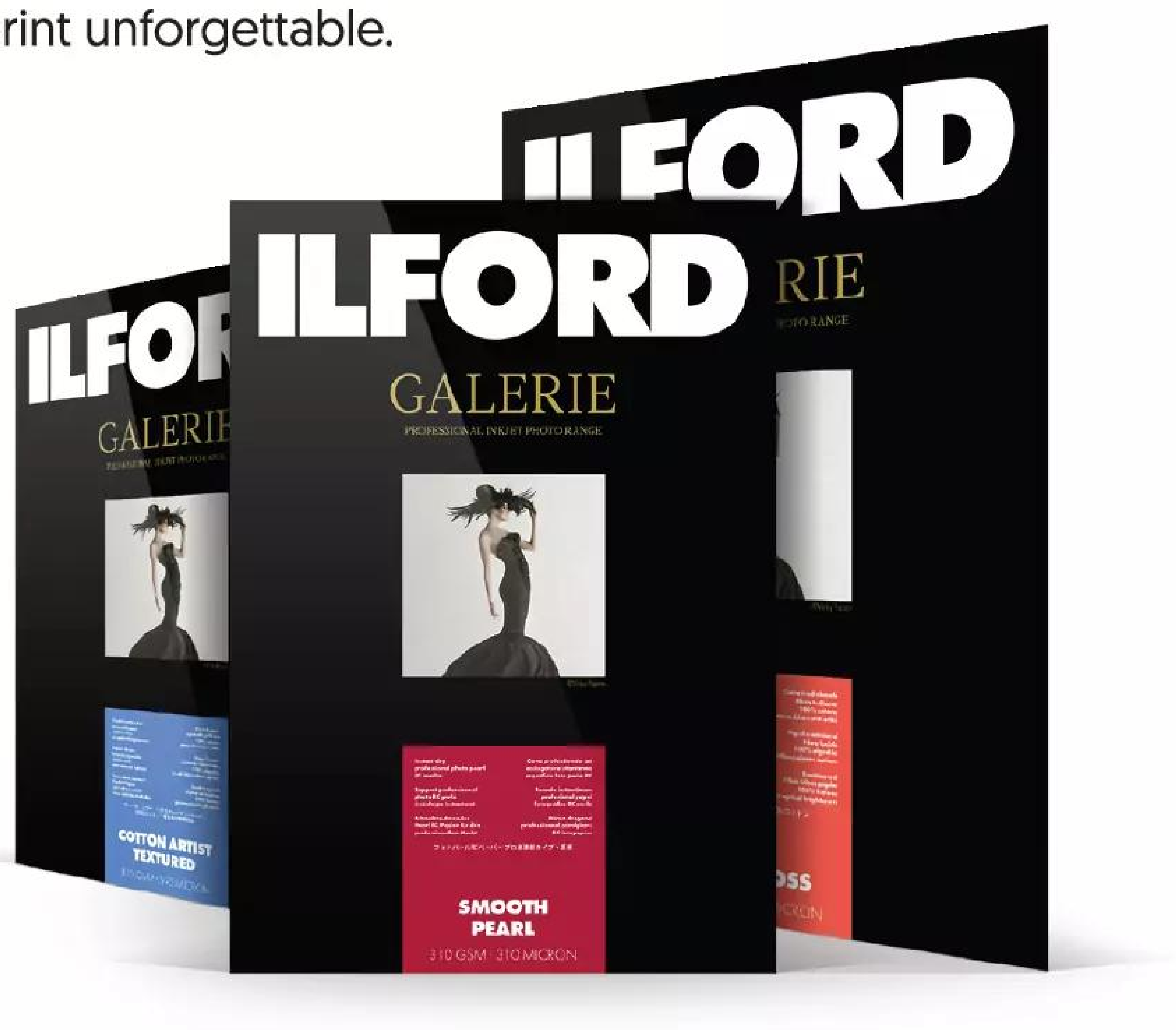
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REPORT BY **PAUL BURROWS**

OM SYSTEM
OM-5 MARK II

OM SYSTEM
OM-5 II
M.ZUIKO DIGITAL

A LITTLE GOES A LONG WAY

The updates are small, but all significant enough to make the Mark II OM-5 a much more attractive proposition, especially given its compactness and affordability. And there's a smart new 'outdoorsy' colour option too.

With likely the bulk of its resources over the last few years going on the OM-1 models and the OM-3, OM Digital Solutions has adopted more of a 'mend-and-make-do' policy with its lower-end mirrorless cameras. The entry-level OM-D E-M10 IV soldiers on seemingly unaffected by time and the Mark II OM-5 can trace its roots directly back to the OM-D E-M5 which began life in early 2012. The E-M5 II (2015), E-M5 III (2019) and the first OM-5 (2022) have all progressively built on the foundation of compactness, capabilities and affordability. The OM-5 Mark II continues in the same vein and with largely incremental upgrades over its predecessor, but they're all important in one or another and certainly contribute to a more usable – and desirable – package.

Given that all the Panasonic Lumix G models have become a lot more portly with the latest iterations, the OM-5 II still keeps its slim figure and pretty looks which are enhanced by the addition of a nice new dress. It's called "Sand Biege" which may sound a bit bland, but is actually rather smart and very much fits in with the prevailing OMDS philosophy of getting back to nature. It's definitely more "Sand" than "Biege" and works particularly well with a black lens (it seems unlikely that there'll be colour matched lenses). Since there's no price premium for the special colour, it's certainly the way to travel if you want something a bit different... which is the main reason for having it as it's certainly not going to fool the wildlife. Hopefully there may be some other colour choices down the track. Of course, the silver or black options are still available and, given its small size and neatly-proportioned styling, the OM-5 II looks good in any finish.

Not a lot has changed externally compared to the previous model, but there is a more pronounced handgrip – which feels both more comfortable and more secure to hold – and some small ergonomic tweaks here and there.

TRIED AND TRUE

On the inside, the 20.37 megapixels 'Live MOS' sensor and the quad-core 'TruePic IX' processor from the earlier model are still on duty so all the related specs are largely unchanged too. The sensor's native sensitivity range is equivalent to ISO 200 to 6400 with extensions down to ISO 64 and up to ISO 25,600. The maximum image size is 5184x3888 pixels for both RAWs and JPEG capture, but there's still no 10-bit HEIF option.

As before, there's a big choice of JPEG image size options derived from five resolution settings, three compression levels and five aspect ratios. Three size settings are configurable in the main shooting menu, created from the camera's custom menu which provides a further selection of two medium image sizes and two small sizes to accompany the largest size. If you then change the aspect ratio – back in the main shooting menu – all the preselected image sizes change accordingly. There are two RAW+JPEG settings which are automatically configured according to how you set up the first two JPEG quality modes.

The fastest shooting speed with the sensor shutter is 30 fps, but with the focus, exposure and white balance locked to the first frame. The slower, 10 fps shooting speed with the sensor shutter allows for continuous AF/AE/AWB adjustment. There's 'Pro Capture H' pre-release buffering which records up to 14 frames at 30 fps prior to shutter release (i.e. when the shutter button is at the half-way position). There's also a 'Pro Capture' mode which also buffers up to 14 frames, but operates at 10 fps. However, the burst lengths are pretty short at the 30 fps shooting speed – just 20 Fine quality JPEGs and 18 RAW files – but extend significantly when shooting at 10 fps when essentially there's no limit on the number of JPEGs (except for the memory card's storage capacity) and you can shoot up to around 138 RAWs in a sequence.

Using the camera's focal plane shutter, the top shooting speed is 6.0 fps with continuous adjustment of the autofocusing, exposure and white balance.

OM SYSTEM
OM-5

▲ Styling and design are largely unchanged from the previous model, but then there wasn't much that needed changing... it looks great and the ergonomics work well.

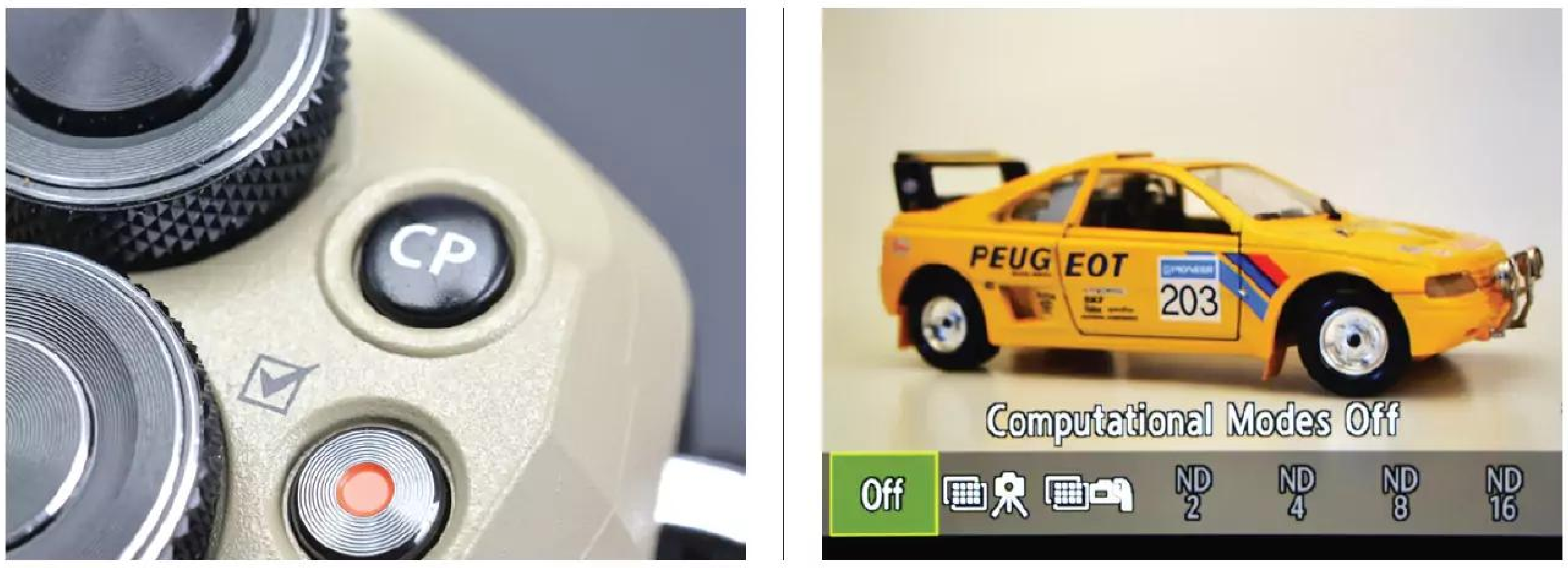
As before, the OM-5 II has a single memory card slot for SD devices and provides UHS-II speed support. It's more conveniently located in the side of the handgrip and not in the base so it's still easily accessed when the camera is mounted on a tripod.

The in-body image stabilisation operates over five axes to give up to 6.5 stops of correction for camera shake. This extends further to 7.5 stops with 'Sync IS' which works along with the optical image stabilisation in selected M.Zuiko Digital PRO series lenses. New is a nifty 'Handheld Assist' display in both the EVF and the monitor screen which shows how steady – or not – you're holding the camera. It works in much the same way as Panasonic's 'I.S. Status Scope' display.

MULTI-TASKING

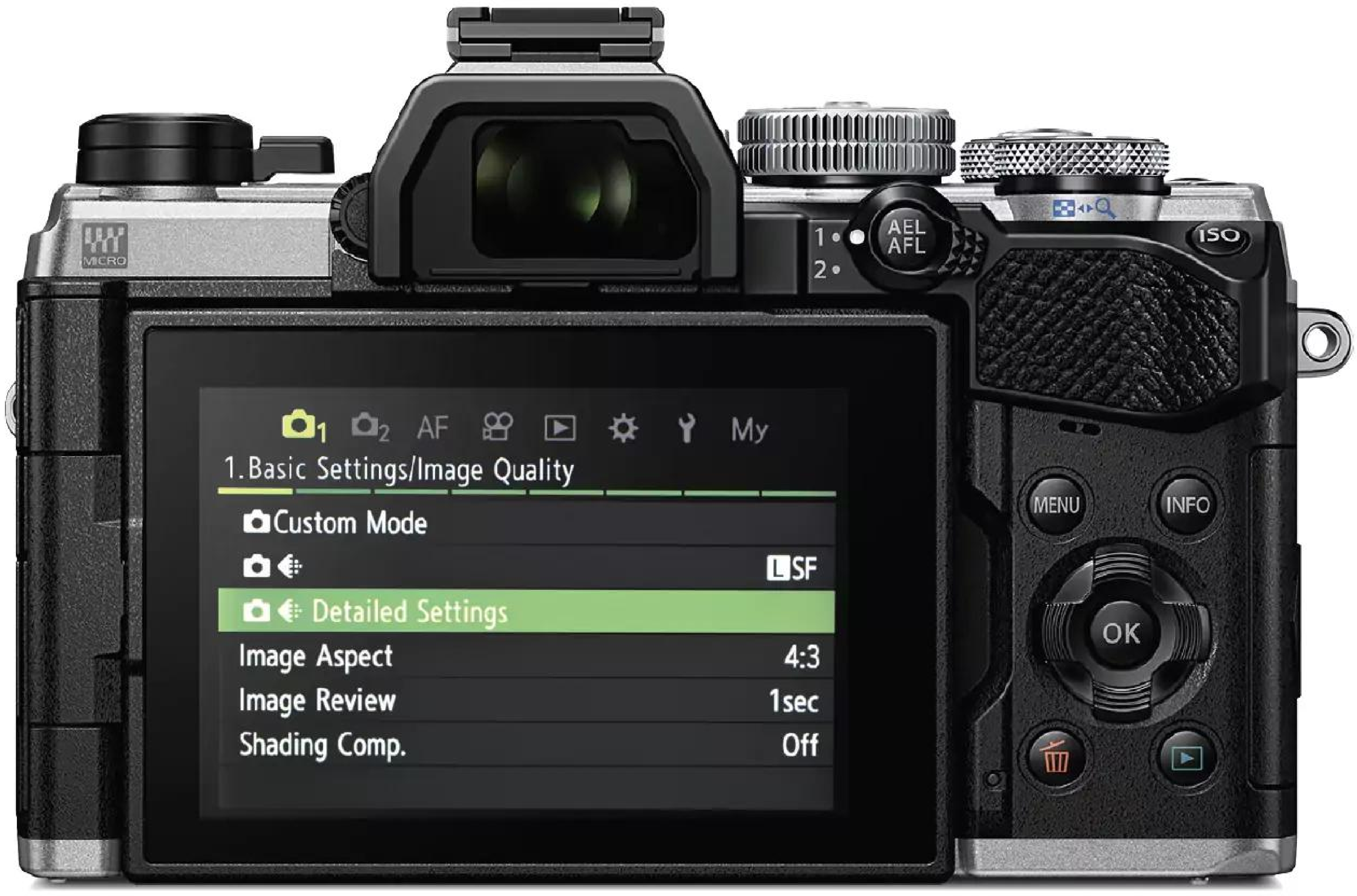
Sensor shifting also drives the 'High Res Shot' capture function which has both hand-held and tripod modes and captures eight frames with half-pixel shifts. The hand-held mode gives a 50 megapixels file at 8160x6120 pixels or 25 MP at 5760x4320 pixels with JPEG capture, along with a JPEG+RAW option. In the tripod mode, the maximum resolution bumps up to 80 megapixels and 10368x7776 pixels with RAW capture, and either the 50 MP and 25 MP options for JPEGs. These frames are combined in-camera with an added benefit being that the resulting single image also exhibits a two-stop reduction in noise.

'High Res Shot' is one of the OM-5 II's 'Computational Photography' modes which are all essentially multi-shot capture functions in one way or another. They have their own menu page and the others are 'Live ND', focus stacking, HDR and a multiple exposure facility... which is actually only for double exposures. Related to the sensor's read-out speed, you don't get the 'Live GND' virtual graduated neutral density filter feature that's on the OM-1s and the OM-3. The 'Live ND' neutral density filter works by capturing a progressively greater number of short exposures – depending on the setting – which has the effect of creating the motion blur normally produced a single long exposure... as would be the case when a neutral density filter was fitted. Because image stabilisation is again



▲ New 'CP' button allows for direct access to the 'Computational Photography' functions via a menu along the bottom of the monitor screen (right).

▲ On/off power lever replicates 35mm Olympus OM design. It's combined with a dual button arrangement for selecting the drive modes and switching between the EVF and the monitor.



1. Basic Settings/Image Quality
Custom Mode
LSF
Detailed Settings
Image Aspect 4:3
Image Review 1sec
Shading Comp. Off

▲ Rear control panel keeps it simple and uses a four-way keypad for all navigational duties. The new menu system comes from the higher OM System models and is a vast improvement over the first OM-5.

operating continuously (and each of the multiple exposures is very short), you can still shoot handheld, even when the 'effective' exposure time equates to one second. In other words, 'Live ND' allows you to in increase the exposure time without needing to use a tripod, and you don't need to use small aperture settings either. The OM-5 II has settings for up to ND16 which represents a four-stop reduction in the exposure.

The focus stacking function can be set for up to eight frames with the focus adjustment step ranging from one to ten. Conveniently, again the multiple images are combined in-camera.

There are two auto HDR modes – which capture four frames to give either "high contrast" or "super-high contrast" effects – or it can be set manually to make +/-2.0 EV adjustments over three, five or seven frames; or +/-3.0 EV variations over either three or five frames. This delivers either a composited JPEG or a set of RAW files for post-camera processing.

In the same menu chapter – but listed under the 'Other Shooting Functions' tab – is the 'Live Composite' function that has been on every Olympus OM-D and OM System camera previously and is designed for low-light photography. It combines a reference background exposure with subsequent multiple exposures that only add any bright light sources (such as stars) thereby avoiding any overexposure. It can run for up to six hours, and the 'Live' bit means it can be monitored in real-time in the monitor or the EVF; likewise also the other Live Bulb/Time shooting modes. Image stabilisation is available with 'Live Composite' shooting so you can also use it hand-held (within reason, of course).

Auto bracketing is available for exposure, white balance, flash, sensitivity, the 'Art Filter' effects and focusing. The focus bracketing can be set to capture up to 999 frames – should you ever need this many – with the focus adjustment step ranging from one (narrow) to ten (wide). However, unlike with the focus stacking functions, these frames have to be combined post-camera.

The in-camera processing options for JPEGs start with a set of eight 'Picture Mode' presets – plus a user-defined Custom option – along with 16 'Art Filter' special effects which, if you count all the possible variations available for the latter, expands that list to 31. Additionally, there are up to nine 'Art Effects' – one of which can be added to an 'Art Filter' (the available selection varies for each). Then you can also add in a 'Colour Creator' function – another long-serving feature in the OM-D/OM world – which is a nifty in-camera method of adjusting hue and/or saturation using the front and rear input wheels. Consequently, it's possible to include all these options in an 'Art Filter' bracketing sequence, giving a grand total of 41 different versions of an image captured in one hit!

There's also a 'Highlight & Shadow' control – another OM staple – which enables the brightness of the highlights and/or the shadows to be adjusted around a central point. Again, the front input wheel adjusts the highlights while the rear control adjusts the shadows.

The various in-camera corrective functions comprise automatic flicker detection and correction, 'Shading Compensation' which reduces vignetting, noise reduction for both high ISO settings and long exposures, and 'Keystone Compensation' which provides in-camera perspective control (in both the vertical and horizontal planes). When making long exposures and/or using telephoto lenses, the camera's 'Anti Shock' mode switches it to the 'electronic first curtain shutter' – the hybrid sensor and focal plane shutter operation – and enables a delay time to be set (from between 1/8 second to 30 seconds) to allow all physical vibrations to die away before the exposure commences. Finally, 'Fisheye Compensation' offers three settings for correcting the extreme distortion when shooting with the M.Zuiko Digital ED 8mm f/1.8 Fisheye PRO lens.

With autofocusing technology having advanced so quickly over the last few years, it's here that the OM-5 II betrays its roots in 2022 and even earlier. Most notable is the absence of AI-based subject recognition modes beyond the less advanced face/eye

B
C
ART
SCN
AUTO
P
A
S
M

▲ Main mode dial can be locked at its settings which include positions for the scene/subject modes and the 'Art Filter' effects.

▲ 'Fn Lever' can be assigned various functions, including switching around how the front and rear input wheels behave.

MENU
INFO
OK
SanDisk
PUSH TO EJECT

▲ Single memory card slot is located at the side of the camera and is for SD devices with UHS-II speed support.

▲ New "Sand Biege" body colour fits in with OM System's outdoorsy emphasis.

detection. However, this can be fine-tuned to focus on either the left or right eye, or whichever one is nearest the camera, the updated control algorithms inherited from the previous model enhance reliability with smaller objects and if the subject turns away briefly.

As before, the hybrid contrast/phase-detection AF system employs 121 measuring points for each and which are all cross type arrays. Frame coverage is 80 percent horizontal and 75 percent vertical with 'Group Target' area modes using either five-, nine-, or 25-point clusters. Additionally, you can create a 'Custom AF Target' area which is adjustable for size – from the full 11x11 points down to just one with any shape variation in between. Up to four 'Custom AF Target' areas can then be stored for recall when shooting, for example, a particular type of subject.

The OM-5 II also has the 'Starry Sky AF' mode which essentially focuses the lens at infinity (and adjusts the AF scanning when shooting at night) with the options of Speed or Accuracy settings for hand-held or tripod-mounted shooting respectively. Low light sensitivity extends down to -6.0 EV at f/1.2 and ISO 200.

Manual focusing is assisted by a magnified image (up to 14x and also available with AF) and/or a focus peaking display which can be set to red, yellow, black or white; and at low, normal or high intensities.

The exposure control is based on the 324-point 'Digital ESP' multi-zone metering with alternative patterns for centre-weighted average and spot, the latter with option of being adjusted to emphasise either the highlights or the shadows, a long tradition that goes back to the Olympus 35mm SLRs days, notably the OM-4 and OM-3.

There's the standard set of 'PASM' exposure control modes with the auto overrides comprising an AE lock, up to +/-5.0 EV of compensation and auto bracketing which can be applied over sequences of two, three or five frames with adjustments of up to +/-1.0 EV, or over seven frames with a variation of up to +/-0.7 EV. Fully automatic shooting is available via the camera's 'iAuto' mode which has automatic subject/scene selection. Alternatively, you can switch to the 'SCN' setting on the main mode dial and manually select one of 22 subject/scene modes which are conveniently grouped into six main categories – People, Motion, Indoors, Nightscapes, Scenery and Close-Ups. All these modes are fully automatic too, but in 'iAuto' there's a selection of overrides for colour saturation, colour balance, brightness, background blur and freeze/blur motion. These are accessed via a touch tab in the monitor's display and adjusted via slider-type controls on-screen.

MAKING MOVIES

As with its photographic capabilities, for video the OM-5 II also shares all the same basic specs and features of its predecessor which, of course, are dictated by the sensor and processor. There are, however, some notable new features which include a front tally lamp, a red image frame which appears in the finder/monitor when recording, and a couple of new video-centric colour profiles. OM Cinema 1 and OM Cinema 2 are borrowed from the OM-3 and create cinematic looks straight out of the camera. In a nutshell, Cinema 1 is primarily designed for landscapes and natural scenes as it mainly enhances the blues in the shadows and the yellows in the highlights, while Cinema 2 lowers the overall contrast – but not as much as the Flat profile – while also adding some cyan to give, and we quote, a "soft expression". Both are said to have the same highlights range as the OM-Log400 profile which remains if you want to deal with colour and contrast in post-production. The OM-5 II also allows for vertical video shooting (i.e. 9:16 aspect) for social media and a webcam capability (albeit only at 720p res). There are no time limits imposed on clip durations beyond, of course, battery and camera temperature. Of course, the camera's size and weight are plusses as is the fully-articulating monitor screen which can be turned to face forward.

There's 4K DCI (i.e. 17:9 aspect) recording, but at 24 fps only and 4K UHD at 30, 25 or 24 fps, but only with 8-bit 4:2:0 colour both internally and externally. Nevertheless, 4K DCI at 24 fps gives a very decent bit rate of 237 Mbps. The 4K video recording is with inter-frame LongGOP compression only, but intraframe (ALL-I) compression is available with Full HD at 24/25/30 fps and gives a maximum bit rate of 202 Mbps. The faster FHD frame rates are with LongGOP compression as is FHD at 100/120 fps which the sole high speed frame rate setting. Time lapse video recording is possible in both 2K and 4K and delivers a Motion JPEG AVI file.

The HDMI output delivers uncompressed 8-bit 4:2:2 colour with both 4K and 2K video (8-bit 4:2:0 colour is recorded internally, but is upsampled to 4:2:2 when recording simultaneously).

There's the option of recording high-quality sound with 24-bit quantisation with sampling at 96 kHz. However, there's only a stereo audio input and no output for connecting headphones. Sound levels can be adjusted manually and there's a built-in attenuator for shooting in very noisy locations. A wind-cut filter can be set to Low, Standard or High. It's also possible to adjust the audio levels sent to the headphones. Additional electronic stabilisation is available when shooting video and enables remarkably smooth hand-held shooting, but it results in a small crop of 1.18x because the image is shifted electronically on the sensor. However, using the up-graded IBIS is equally effective when shooting video

The OM-5 II's video functionality includes time-coding, flicker reduction, continuous AF with face/eye tracking, the 'PASM' exposure modes, the 'Picture Mode' presets (with the Muted setting delivering a flatter colour rendition), most of the photographic 'Art Filter' effects, the Highlight/Shadow control, lens vignetting correction, the grid guides, the real-time histogram display and the focus peaking display. Touch controls are available for AF point selection, pull focusing, exposure adjustment, audio recording levels and power zooming.

. If you're more serious about video, it's hard to go pass a Panasonic Lumix G series camera, but the OM-5 II certainly has enough for the casual video-maker to create good-looking clips and will potentially also work well for vlogging and content creation for social media.

Emergency
HELP
KATOOMBA

◀Test images captured as JPEG/large/superfine files and using the M.Zuiko Digital ED 12-40mm f/2.8 PRO and 40-150mm f/4.0 PRO zoom lenses. Shutter-priority auto exposure control, multi-zone metering, Vivid 'Picture Mode' preset and ISO settings from 200 to 1600. Straight out of the camera, these files exhibit excellent detailing with linearly smooth tonal gradations, good contrast and pleasing colours across the palette. The dynamic range is also very good and, subjectively at least, on a par with the higher-end models and their stacked sensors.

Here too, you can access a whole bunch of 'Shooting Tips' for a variety of subjects.

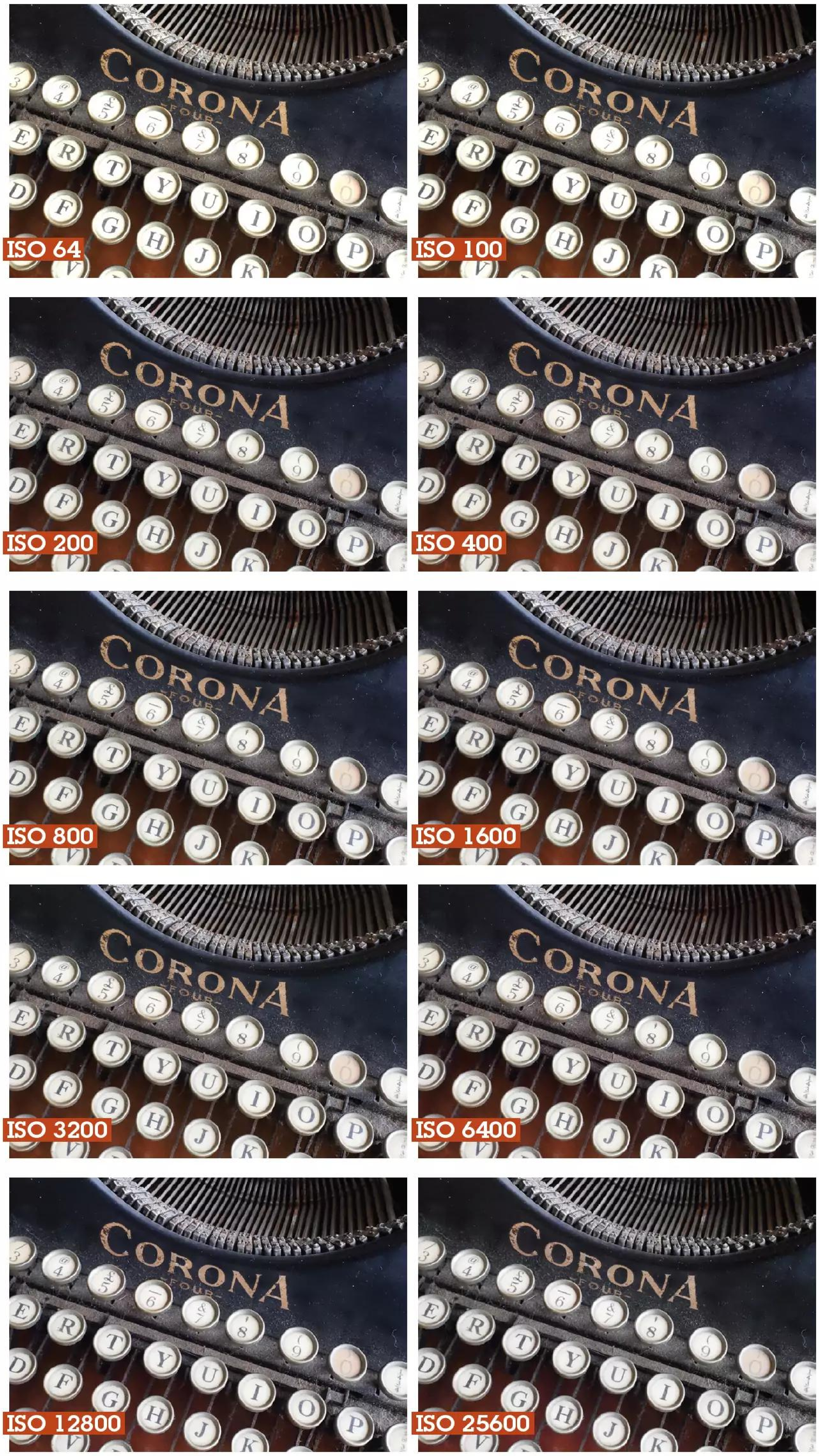
The OM-5 II's focal plane shutter has a speed range of 60-1/8000 second with flash sync up 1/250 second and a 'B' timer for up to 30 minutes. The sensor shutter has a speed range of 60-1/32,000 second, but due to the sensor's read-out speed flash sync is only up to 1/50 second. The hybrid 'electronic first curtain shutter' (EFCS) – automatically engaged for the 'Anti-Shock' shooting – has a speed range of 60-1/320 second, the camera will switch to the FP shutter if faster speeds are required.

The white balance control options comprise two auto modes (the second being the 'Keep Warm Colour' variation), seven lighting type presets (including one for shooting underwater) and provisions for storing up to four custom measurements. As already noted, there's auto bracketing for white balance which operates over three frames. All have fine-tuning which is set via slider-type controls in the monitor screen. Manual colour temperatures can be selected over a range of 2000 up to 14,000 degrees Kelvin.

IN THE HAND

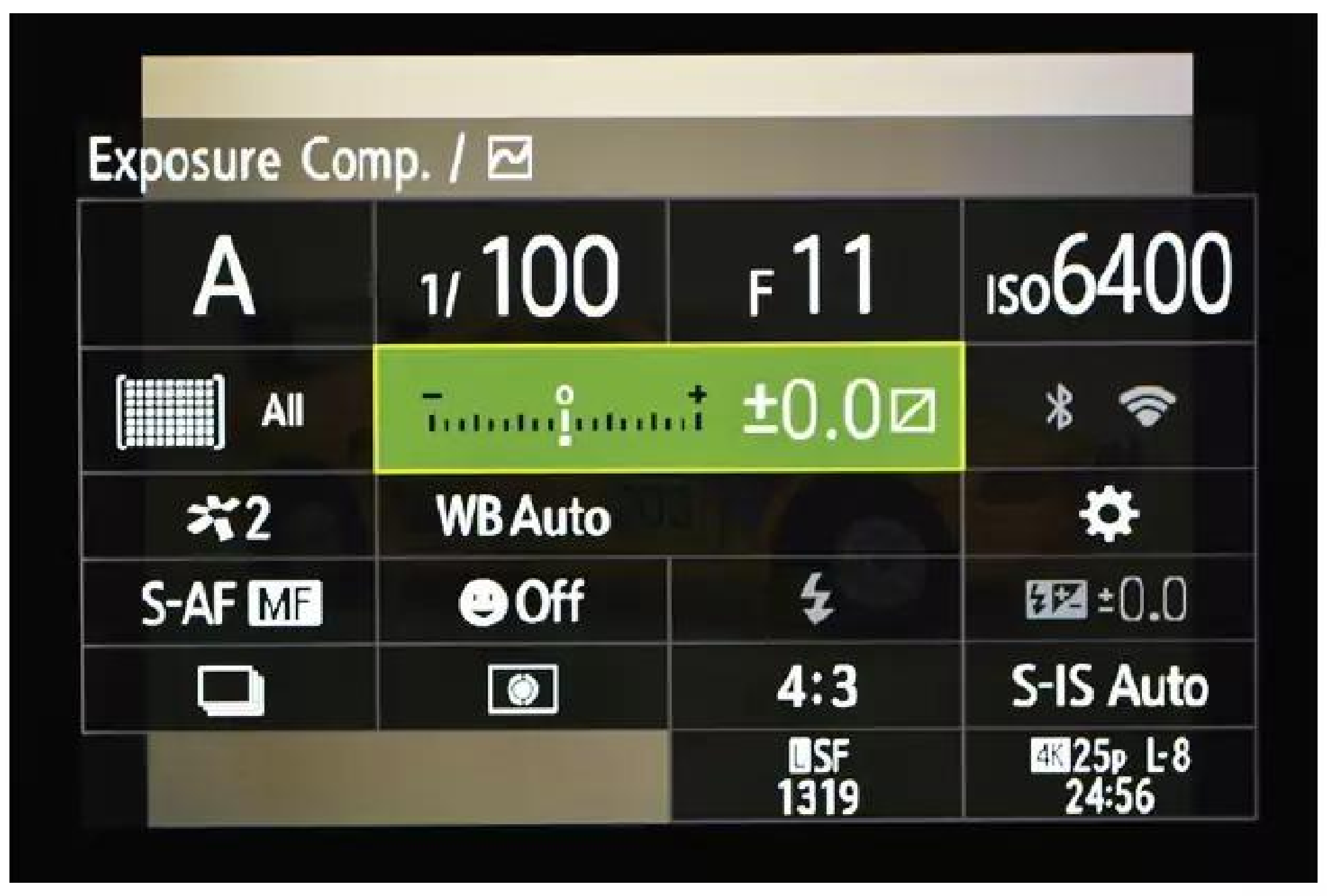
The OM-5 II's control layout is little changed back to the E-M5 III, but there are some notable changes. We've already mentioned the bigger handgrip and it really does make a different to the handling especially with the longer and heavier lenses. New is a button marked 'CP' which stands for 'Computational Photography' and was introduced on the OM-3. This enables direct access to the CP modes and is used in conjunction with the rear input wheel. It brings up a ribbon menu along the lower edge of the monitor screen which displays all the possible setting options, although in some cases, various things need to be preset via the main menu in order to be available via for selection on-screen.

The top panel layout centres on main mode dial – which can be locked at its settings – and is accompanied by front and rear input wheels. These are actually also standalone dials. The shutter release is located within the front input wheel and there's a dedicated button for setting the ISO, but the one for exposure compensation

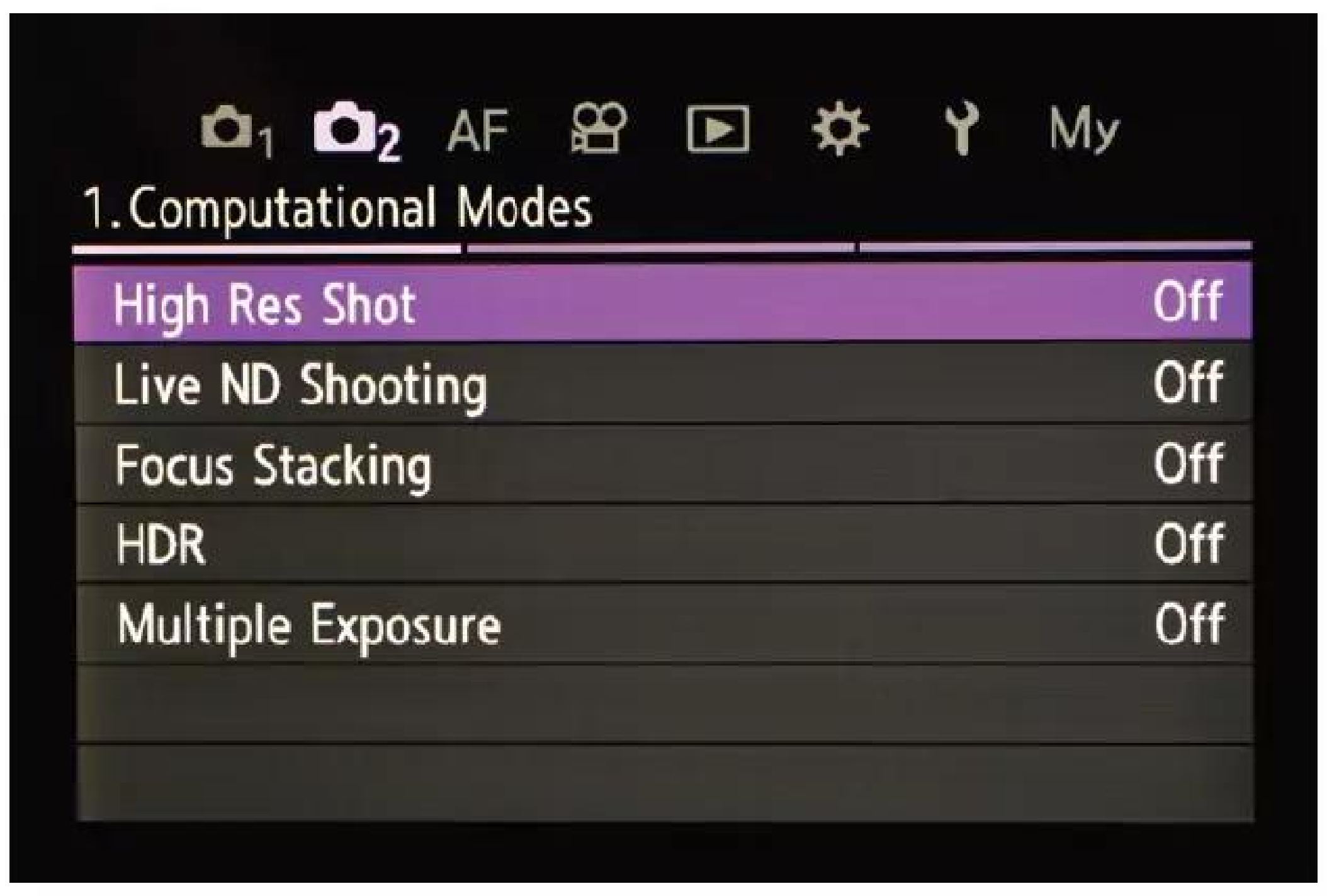


TEST IMAGES – ISO RANGE

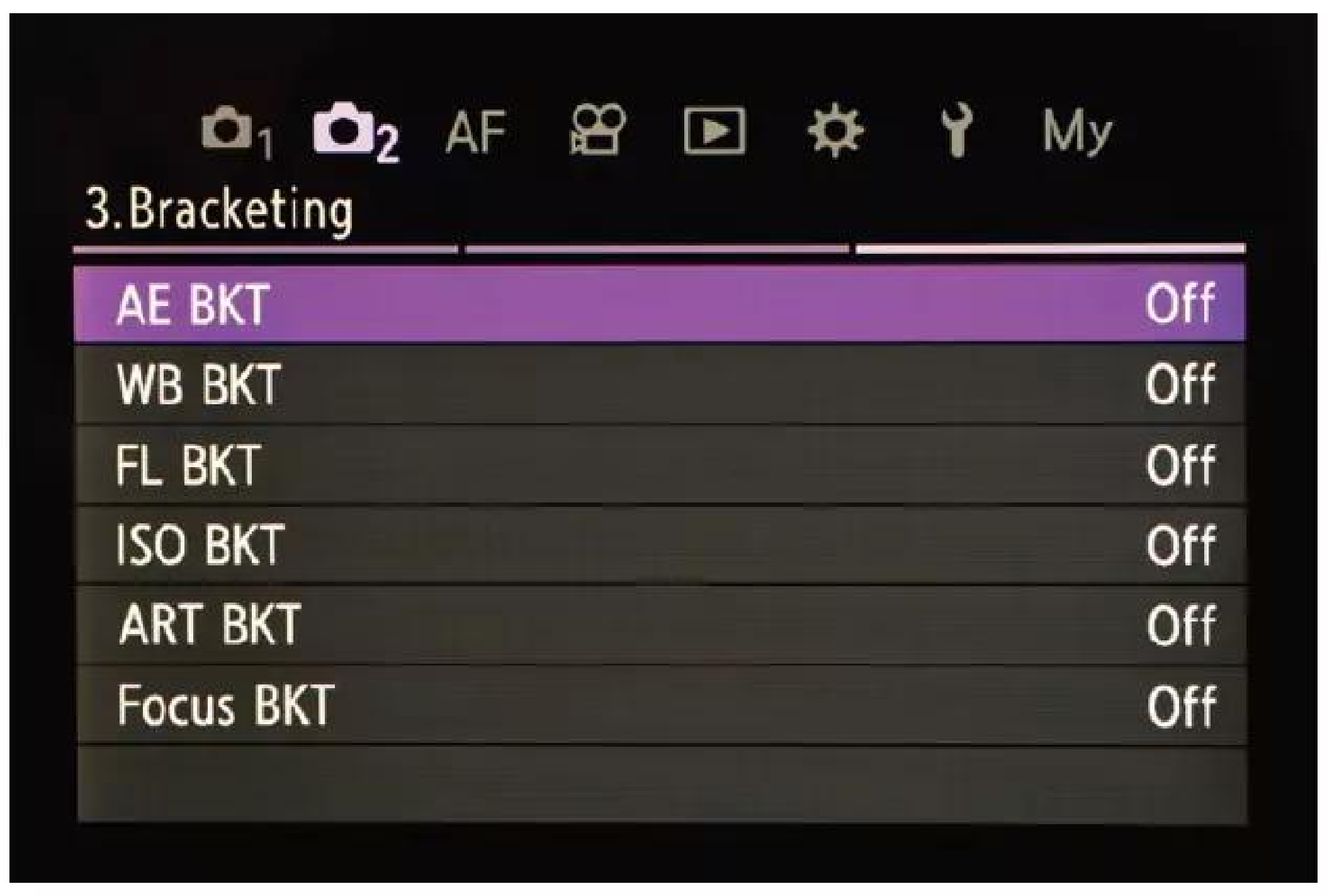
The OM-5 Mark II's native sensitivity range is equivalent to ISO 200-6400 with extensions down to ISO 100 and 64, and up to ISO 12,800 and 25,600. Noise is very well managed across the entire native range and there's only a marginal loss of definition and saturation at ISO 12,800. The ISO 25,600 setting is still usable provided you aren't planning to make big enlargements. These test images are JPEG/large/fine files taken in the aperture-priority auto exposure mode with the aperture set to f/11 so the exposure time varies to compensate for the ISO adjustments. Noise Reduction and the Noise Filter are switched off. OM System M.Zuiko Digital 12-40mm f/2.8 PRO.


Exposure Comp. /
A
1/100
F11
ISO6400
All
±0.0
WB Auto
S-AF MF
Off
±0.0
4:3
S-IS Auto
SF 1319
4K 25p L-8 24:56

▲ ‘Super Control Panel’ display in the monitor provides quick and easy access to a whole host of capture-related function with the added efficiency of touch screen selection.

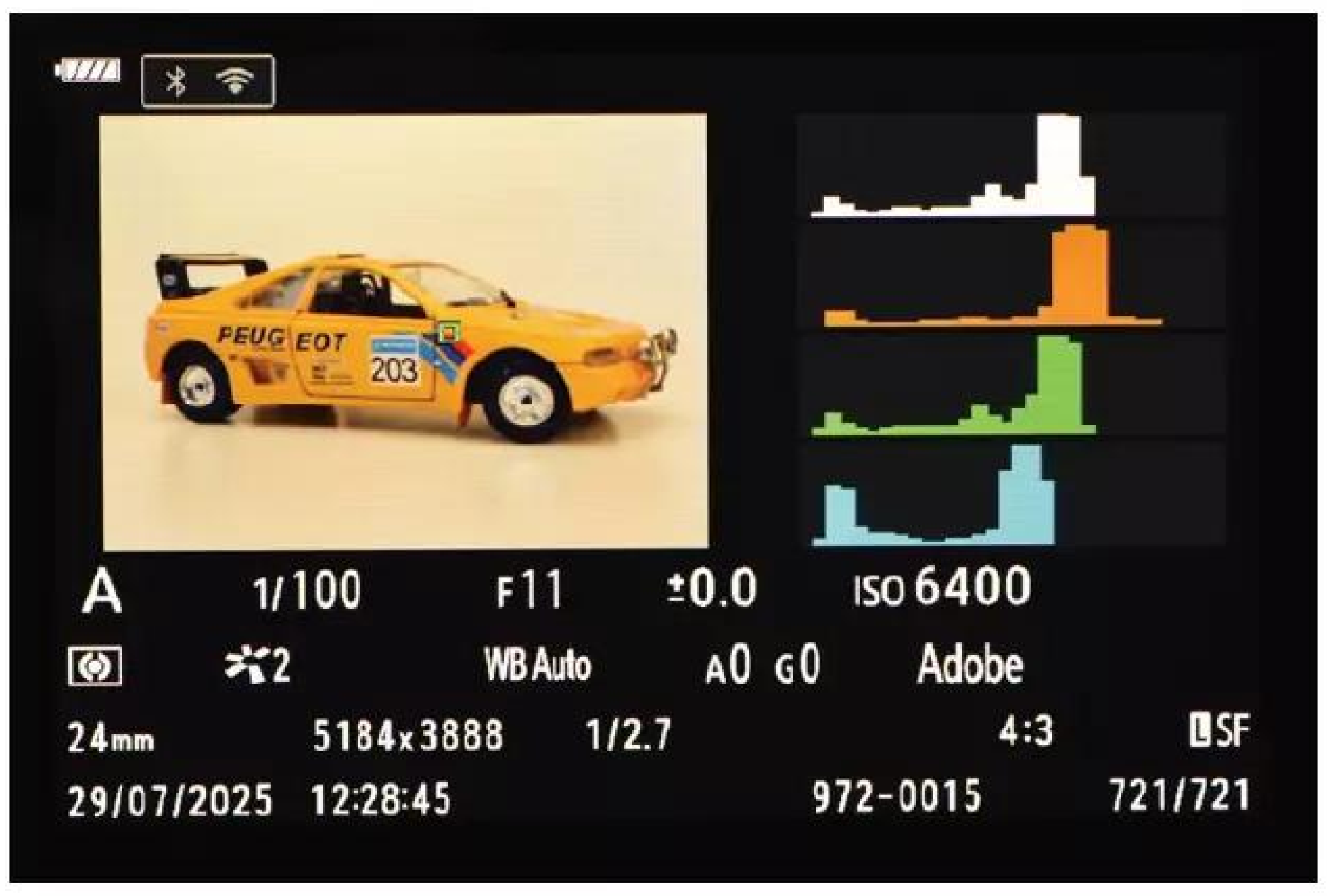


1.Computational Modes
High Res Shot Off
Live ND Shooting Off
Focus Stacking Off
HDR Off
Multiple Exposure Off

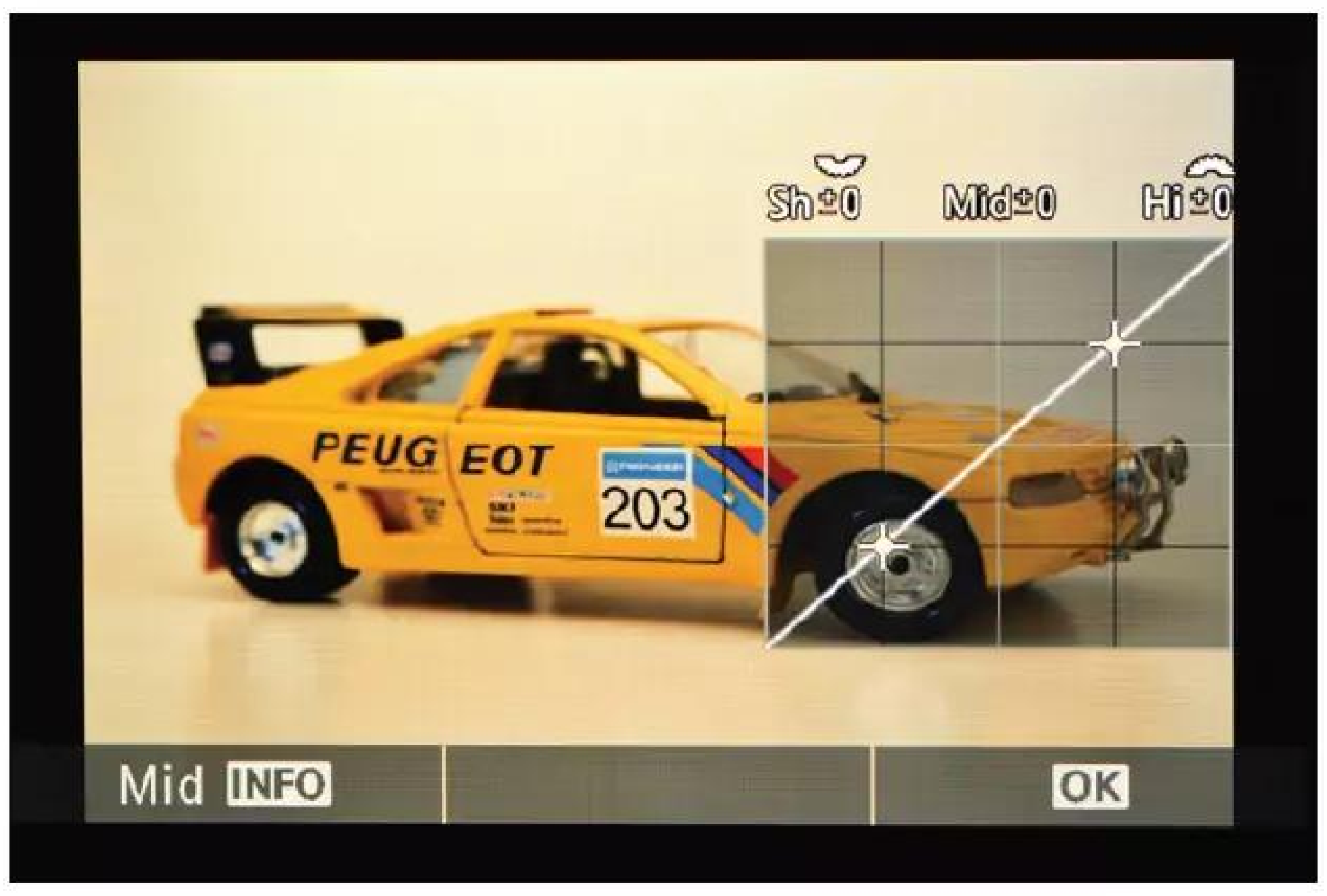


3.Bracketing
AE BKT Off
WB BKT Off
FL BKT Off
ISO BKT Off
ART BKT Off
Focus BKT Off

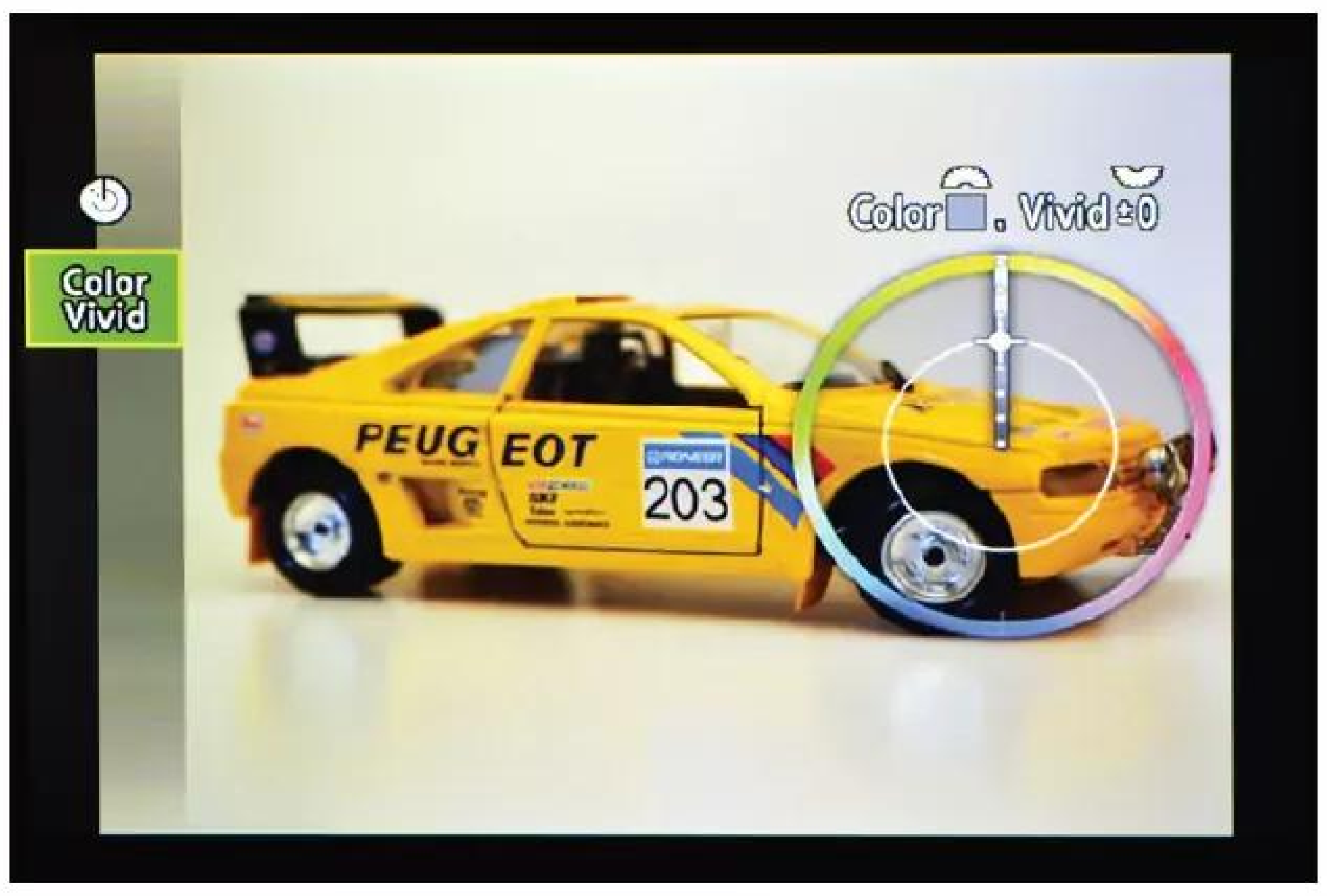
▲ ‘Computational Photography’ functions have their own menu page, as do all the auto bracketing sequences. Purple-colour chapter essentially covers all the camera’s multi-shot capture modes.


A
1/100
F11
±0.0
ISO 6400
WB Auto
A0 G0
Adobe
24mm
5184x3888
1/2.7
4:3
SF
29/07/2025 12:28:45
972-0015
721/721

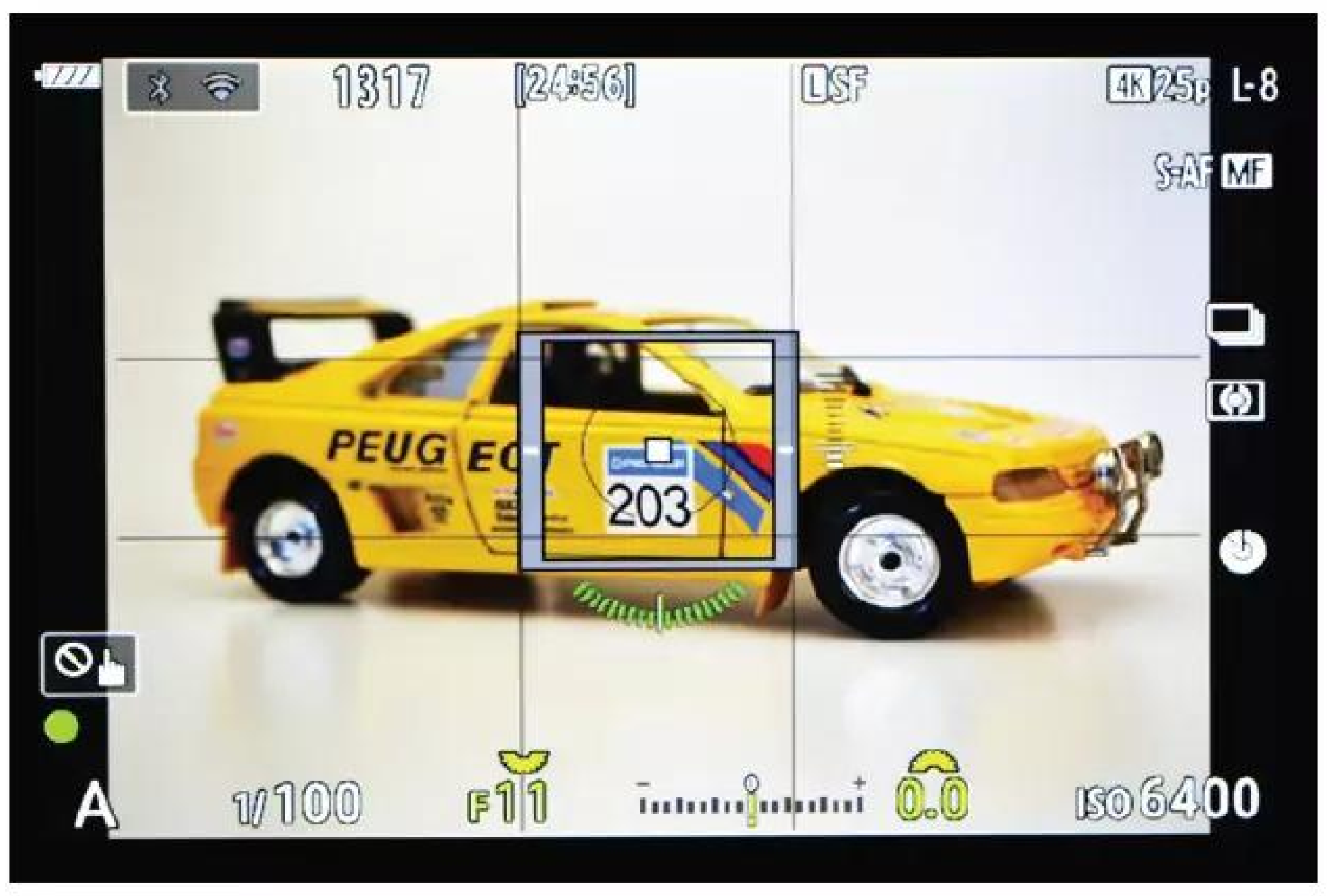
▲ Replay/review screen options include a thumbnail with a set of brightness and RGB channel histograms along with the main capture info.


Sh±0
Mid±0
Hi±0
Mid INFO
OK

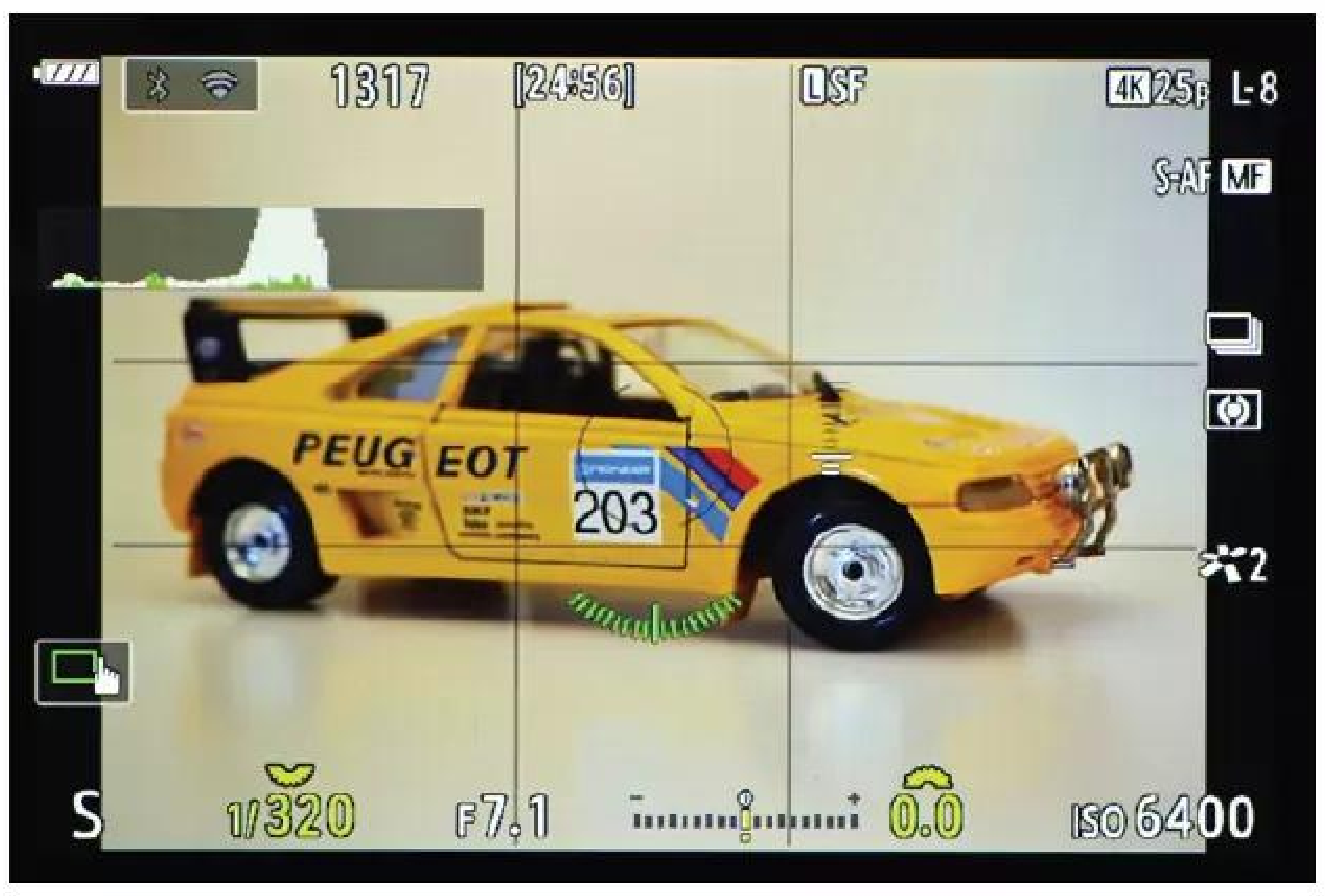
▲ ‘Highlight & Shadow’ control allows for the brightness of the highlights and/or the shadows to be adjusted around a central point in a similar to Photoshop’s Curves tool.


Color Vivid
Color
Vivid±0

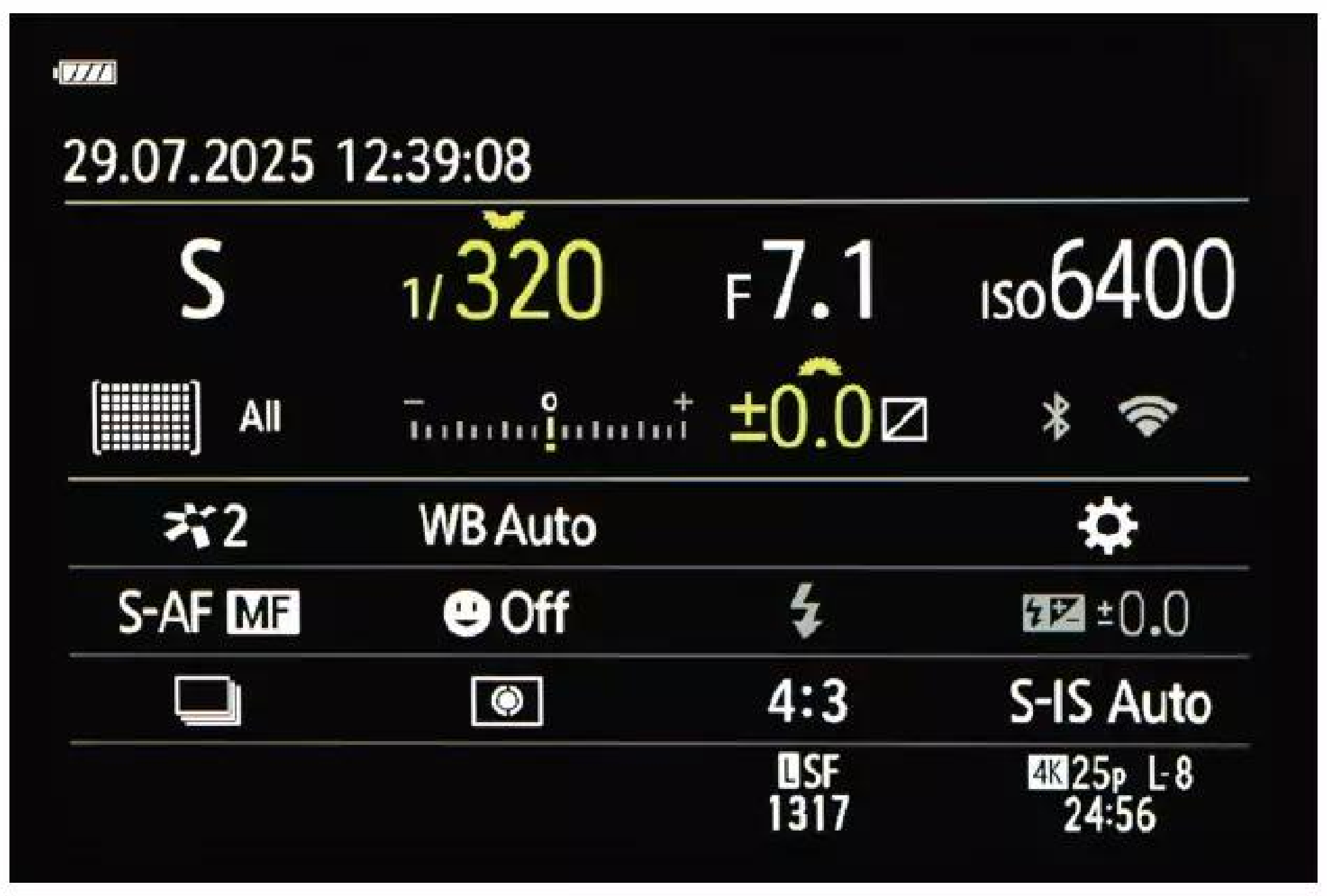
▲The ‘Colour Creator’ function works in a similar way to Photoshop’s Saturation/Hue adjustment; giving access to 30 hues, each with eight levels of saturation.


1317
24:56
SF
4K 25p L-8
S-AF MF
A
1/100
F11
0.0
ISO 6400

▲ New ‘Handheld Assist’ display shows how steadily – or not – you’re holding the camera. It works in much the same way as Panasonic’s ‘I.S. Status Scope’ display.


1317
24:56
SF
4K 25p L-8
S-AF MF
S
1/320
F7.1
0.0
ISO 6400

▲ Live view screen is extensively customisable with a real-time histogram, dual-axis level display, a grid guide and highlight/shadow warnings. The histogram includes an internal section – colour green – which shows the brightness values within the active autofocusing point or cluster of points.


29.07.2025 12:39:08
S
1/320
F7.1
ISO6400
All
±0.0
WB Auto
S-AF MF
Off
±0.0
4:3
S-IS Auto
SF 1317
4K 25p L-8 24:56

▲ Monitor-based ‘Super Control Panel’ provides a comprehensive set of settings and function icons with the option of direct access via the touch screen.

that was on the first OM-5 has been replaced by the ‘CP’ button. You can, of course, if preferred, return it to this function via the customisation menu. A total of seven buttons can be re-assigned along with the rear panel’s keypad and the ‘L-Fn’ button which is provided on some M.Zuiko Digital lenses. The twin input wheels are also customisable depending on the exposure mode in use. Additionally, these can be easily switched between different functions via an ‘Fn Lever’ on the rear panel (also customisable).

Perhaps the most important of the Mark II’s upgrades is its menu design which has now trickled down from the OM-1, OM-1 II and OM-3. It’s a huge improvement on what went before in terms of its graphic, the function groupings (which are colour coded) and the ease of navigation which you can do by chapter, page or line. It may look like a small change, but it has a big impact on the camera’s operational efficiencies.

As before, there’s also the option of the ‘Super Control Panel’ which is available as a stand-alone display in the monitor or superimposed over the live view image (when it’s called ‘Live Control’). These cover everything you’re likely to need to access when shooting and are included in the touch screen implementation, but the main menu continue to be only navigable using the external controls. The other touch screen operations include focusing point/zone selection – with or without automatic shutter release – and a touchpad facility (which Olympus calls the “AF Targeting Pad”) for use with the EVF. It’s also available in review/replay for functions such as browsing and zooming.

The viewfinder is unchanged from the earlier model so uses an OLED panel with a resolution of 2.36 megadots, a magnification of 0.68x (35mm equivalent) and a refresh rate of 60 fps. These specs continue to look pretty tame by current standards, but as with the OM-5, in practice the finder works just fine in terms of its sharpness colour and contrast.

Both the EVF and the monitor are adjustable for brightness and colour balance plus there’s a choice of three displays styles for the viewfinder. Two of these essentially replicate the read-outs of a film-era viewfinder (Style 1 replicating the OM-4’s white-on-blue display) while the third duplicates the monitor. The monitor’s

7.62 cm LCD TFT panel is adjustable for swing and tilt, and has a resolution of 1.037 megadots.

The live view screen can be customised with a real-time histogram, dual-axis level indicators, both highlight and shadow warnings (in red and blue respectively) and a superimposed grid (selected from a choice of six and with a choice of colours too). The highlight and shadow warnings have adjustable thresholds and the real-time histogram display includes an internal section – shown in green – which shows the brightness values within the selected focusing point or cluster of points.

Also borrowed from the higher-end models is a 'Night Vision' mode which modifies the image display's brightness to maintain viewing in very low light or at night, but without unduly compromising your night vision. An 'Anti-Flicker LV' facility reduces the flickering on the live view display when shooting under artificial lighting. It can be set to 50/60 Hz depending on the country you're in, or to Auto.

The review/replay screens can also be configured to include a thumbnail image with a full set of histograms (i.e. brightness and the RGB channels), a larger brightness histogram superimposed over the image, and both highlight and shadow warnings. The in-camera editing functions comprise Shadow Adjust (i.e. for dynamic range expansion), Red-Eye Fix, Trim, Aspect, B&W, Sepia, Saturation, Resize, 'e-Portrait' processing and RAW-to-JPEG conversion.

Another small but important upgrade is the adoption of a Type C USB connection, replacing the dark ages Type B and which benefits in-camera battery recharging. However, at USB 2.0 speed, it's still pretty slow for data transfer. The other interfaces are micro HDMI (Type D), a stereo audio input (3.5 mm minijack), a wired remote (2.5 mm), and a PC standard flash hotshoe. The wireless connectivity options are WiFi (the 2.4 GHz band) and Bluetooth LE (version 4.2). The OM-5 II can operate as a UVC/UAC compatible webcam via its USB C connection.

The camera is powered by the same 1210 mAh BLS-50 lithium-ion battery pack as before which is good for a quoted 310 shots per charge (but there are economy settings which will extend this further).

The construction is polycarbonate panels over a magnesium alloy chassis with weather sealing to the same IP53 standard as the OM-1 models and the OM-3. In terms of the protection against moisture, this certification means that the camera had to be able to withstand water being sprayed on it continuously at a 60-degree angle for at least three minutes. The bodyshell is also insulated to allow operation in subzero temperatures down to -10 degrees Celsius.

SPEED AND PERFORMANCE

Loaded with a SanDisk Extreme Pro 64 GB SDXC UHS-II memory card and using the focal plane shutter, the OM-5 Mark II captured a burst of 80 JPEG/large/superfine frames in 13.153 seconds which represents a shooting speed of 6.08 fps. Switching to the sensor shutter, a burst of 99 best-quality JPEGs was recorded in 9.9 seconds dead which, without needing too much calculation, represents a shooting speed of exactly 10 fps. The 30 fps speed is achieved with Fine quality JPEGs and here a sequence of 28 frames was captured in 0.936 seconds to give a shooting speed of 29.9 fps. The Superfine quality test file sizes averaged 12.6 MB in size while the Fine quality JPEGs – of the same subject matter – were 11.4 MB.

With the AF lacking the AI-derived smarts of the higher-end OM System models – and which, incidentally, Olympus pioneered with the brilliant E-M1X – it's still quick and reliable even in quite low light conditions.

The face/eye tracking works well even with erratically moving subjects and also stays locked on when the subject turns away briefly, or moves away from the camera. You can also select a specific person from among a group. Utilising the large selection of AF area modes –particularly being able to create custom sizes and shapes – is a key to getting the best out of the Mark II's AF as it enables more precise selectivity to better match specific subjects. It's perhaps a bit surprising that there aren't recognition modes for birds and animals – given OM System's "It's In Our Nature" slogan – but it's pretty easy to fine-tune the AF for these subjects and it's certainly quick enough in terms of its responsiveness and subsequent continuous adjustment.

Not surprisingly, the IQ performance doesn't differ very much from that of its predecessor, but there will have certainly been a few tweaks to the image data processing algorithms since that model. Straight out of the camera, the superfine quality JPEGs have excellent detailing with linearly smooth tonal gradations, good contrast and very pleasing colours across the palette. The dynamic range is also very good and, subjectively at least, on a par with the higher-end models and their stacked sensors. The dynamic range also makes for more flexibility with RAW capture, giving plenty of scope for post-camera exposure adjustments for the highlights and shadows. However, as with all the current OM System models, the JPEG performance is a very big plus.

Noise reduction is well managed – in terms of maintaining both definition and saturation – up to ISO 6400. At the higher sensitivity settings there's some softening of the finer detailing and an increase in graininess, but you can still shoot at ISO 12,800 without any significant loss of image quality. Overall then, the OM-5 II's low light performance is excellent, but as we noted with the previous model, the IBIS – not to mention the lightness of the camera and many of the M.Zuiko Digital lenses – makes it possible to keep on shooting at lower ISO settings in many situations in order to optimise both the sharpness and the colour reproduction.

THE VERDICT

With the base camera now some years old, the OM-5 II belies its veteran roots in a couple of areas, but the original model was a great little package and all the desirable fundaments remain – size, weight, speed, handling, IQ and affordability. The operational efficiency gets a big boost from the newer and speedier menu system and the overall ergonomics benefit from the better-shaped grip. While there are obviously features to suit shooters who want the camera to do the work – and the pricing will appeal to beginners – the OM-5 II still rewards for effort and has all the capabilities needed for the more experienced photographer to achieve the results they're chasing, both technically and a creatively. Better still, it gets you where you want to go both intuitively and logically.

It's still the prettiest mirrorless camera on the market – yes, even compared to the OM-3 – and one of the most compact of the SLR-style models even in the M43 world. The retro elements of the control layout are well balanced with modern-day functionality, but arguably the best aspect of the OM-5 II is that it's such a thoroughly enjoyable camera to use in any situation. And, while prices seem to be creeping up everywhere with upgraded models, the Mark II OM-5 still represents exceptional value for money.

VITAL STATISTICS

OM System OM-5 Mark II $1,699 body only, recommended retail.

Type: Enthusiast-level interchangeable lens digital mirrorless camera with Micro Four Thirds System bayonet lens mount.

Focusing: Automatic hybrid system using contrast-detection and phase-difference detection measurements via the imaging sensor with 121 focusing points for each (all cross types). Frame coverage is 80 percent horizontal and 75 percent vertical. Focus points may be selected manually or automatically by ▸

VITAL STATISTICS

the camera. 'Group Target' area modes with five-, nine-, or 25-point clusters or custom shape/size (up to four can be created and stored). 'Starry Sky AF' with Speed Priority (handheld) and Accuracy Priority (tripod) modes. Manual switching between one-shot and continuous AF modes. Face/eye detection and auto tracking. Eye detection can be set to Right, Left or Near priority. Continuous manual override available with single-shot mode. Low light sensitivity down to -6.0 EV at f/1.2 and ISO 200. Low light/contrast assist via built-in illuminator. Focus assist via magnified image (3x/5x/7x/10x/14x) and focus peaking display (Red, Yellow, White or Black with High, Normal or Low intensity).

Metering: 324-point 'Digital ESP' (i.e. multi-zone), centre-weighted average, spot (2.0%) with highlight/shadow bias, and TTL flash. Metering range is EV -2.0 to 20 (ISO 100 and f/2.8).

Exposure Modes: Continuously-variable program with shift, shutter-priority auto, aperture-priority auto, metered manual, TTL auto flash and TTL flash. Plus 22 subject/scene modes. Automatic scene detection in 'iAuto' mode.

Shutter: Electronic, vertical travel, metal blades, 60-1/8000 second plus B (up to 30 minutes) and T. Flash sync to 1/250 second. Sensor shutter has a speed range of 60-32,000 second with flash sync up to 1/50 second. Electronic first curtain shutter (EFCS) has a speed range of 60-1/320 second. Exposure compensation up to +/-5.0 EV in 1/3, ½ or full stop increments.

Viewfinder: OLED EVF with 2.36 megadots resolution, 100 percent coverage and 0.68x magnification (35mm equivalent). 60 fps refresh rate. Adjustable for brightness and colour balance plus 'Simulated OVF' mode. 7.62 cm LCD TFT monitor panel with 1.037 megadots resolution, tilt/swing adjustments and touch screen controls. Adjustable for brightness and colour balance. Auto/manual switching between EVF and monitor screen.

Flash: No built-in flash. External flash units connect via hotshoe.

Additional Features: Polycarbonate bodyshell over a magnesium alloy chassis and sealed against dust and moisture (up to IP53 standard) with insulation for operation down to -10 degrees Celsius, AE/AF lock, auto exposure bracketing (over two, three, five or seven frames), depth-of-field preview, programmable self-timer (2 and 12 second delays, 1 to 10 frames, variable interval times), audible signals, auto power-off, hard-wired remote triggering.

DIGITAL SECTION

Sensor: 20.37 million (effective) pixels Live MOS (CMOS) with 17.4x13.0 mm imaging area and 4:3 aspect ratio. No optical low-pass filter. Sensitivity equivalent to ISO 200-25,600 (extendable to ISO 64 and 100).

Focal Length Magnification: 1.97x.

Formats/Resolution:

- Three JPEG compression settings (Superfine, Fine and Normal), RAW output (12-bit RGB colour with lossless compression) and RAW+JPEG capture. Five resolution settings at 4:3 aspect ratio; 5184x3888, 3200x2400, 1920x1440, 1280x960 and 1024x768 pixels.
- Five resolution settings at 3:2 aspect ratio; 5184x3456, 3216x2144, 1920x1280, 1296x864 and 1008x672 pixels.
- Five resolution settings (four available at any one time) at 16:9 aspect ratio; 5184x2920, 3200x1800, 2560x1440, 1920x1080, 1536x864, 1280x720 and 1024x576 pixels.
- Five resolution settings at 1:1 aspect ratio; 3888x3888, 2400x2400, 1440x1440, 960x960 and 768x768 pixels.
- Five resolution settings at 3:4 aspect ratio; 2912x3888, 1824x2432, 1104x1472, 720x960 and 576x768 pixels. 24-bit RGB colour for JPEGs, 36-bit RGB colour for RAW files. RAW files captured at 5184x3888 pixels.

Video Recording:

- MOV format (MPEG-4 AVC H.264 codec, 8-bit 4:2:0 colour, IPB compression) – 4K DCI at 4096x2160 pixels, 24 fps and 17:9 aspect ratio (237 Mbps). 4K UHD at 3840x2160 pixels; 30, 25 or 24 fps and 16:9 aspect ratio (up to 102 Mbps).
- Full HD at 1920x1080 pixels; 30, 25 or 24 fps and 16:9 aspect ratio (up to 202 Mbps with ALL-I compression, up to 27 Mbps with IPB); Superfine, Fine and Normal image quality modes.
- Full HD at 1920x1080 pixels; 60 or 50 fps and 16:9 aspect ratio (up to 52 Mbps); Superfine, Fine and Normal image quality modes.
- Full HD at 1920x1080 pixels and 120 or 100 fps; 16:9 aspect ratio.
- HD at 1280x720 pixels; 60, 50, 30, 25 or 24 fps; 16:9 aspect ratio (up to 26 Mbps); Superfine, Fine and Normal image quality modes. No clip length limits.

Audio: Built-in stereo microphones with auto/manual adjustable levels, wind filter and attenuator. Stereo audio input.

Video Features: Hybrid IBIS and electronic image stabilisation, flicker scan, time lapse movie recording (4K, FHD, HD), webcam support via USB, OM-Log 400 colour profile, time code support (rec run, free run, drop frame, non-drop frame), grid lines (choice of six), focus peaking display (Red, Yellow, White or Black; High, Normal or Low intensity). Webcam video/audio streaming via USB C (UVC/UAC support).

HDMI Output: 4K DCI 17:9 at up to 30 fps, 4K UHD 16:9 at up to 30 fps, Full HD 16:9 at up to 60 fps.

Recording Media: Single slot for SD/SDHC/SDXC memory cards with UHS-II speed support.

Continuous Still Shooting: Unlimited JPEG/large/fine frames at up to 6.0 fps and up to 149 RAW frames with the focal plane shutter and continuous AF/AE adjustment. Up to 20 JPEG/large/fine frames or up to 18 RAW frames at 30 fps with the sensor shutter. Up to 10 fps with the sensor shutter and continuous AF/AE adjustment. 'Pro Capture High' mode pre-captures 14 frames at up to 30 fps prior to full shutter release, 'Pro Capture Low' pre-captures 14 frames at up to 10 fps.

White Balance: TTL measurement via image sensor. Auto measurement, auto warm, seven presets and four custom settings. White balance compensation (amber-to-blue and/or green-to-magenta) in all presets plus white balance bracketing over three frames. Manual colour temperature setting from 2000 to 14,000 degrees Kelvin.

Interfaces: USB Type C (USB 2.0 speed), HDMI Type D, 3.5 mm stereo audio input (supports plug-in power), 2.5 mm remote trigger input.

Additional Digital Features: Five-axis sensor-shift image stabilisation with up to 6.5 stops of correction for camera shake (up to 7.5 stops with 'Sync IS' and supporting lenses), 'Handheld Assist' stabilisation display, multi-shot 'High Res Shot' capture via pixel shift with in-camera processing (Handheld Mode = 25 or 50 MP resolution, JPEG or RAW; Tripod Mode = 25, 50 or 80 MP resolution, JPEG or RAW), 'Live ND' built-in ND filter effects (equivalent to ND2, 4, 8 or 16), Adobe RGB or sRGB colour spaces, flicker detection and correction, 'Flicker Scan' for high-frequency light sources, long exposure noise reduction, high ISO noise filter, 'Keystone Compensation' digital perspective control, 'Fisheye Compensation', eight 'Picture Modes' (i-Enhance, Vivid, Natural, Muted, Portrait, Monotone, e-Portrait, Underwater), one user-defined custom 'Picture Mode', adjustable 'Picture Mode' adjustments (Contrast, Sharpness, Saturation and Gradation – Auto, Normal, Low-Key, High-Key), Monochrome mode has four contrast filters and four toning effects, 'Colour Creator' function (30 colours, eight saturation levels), 'Highlight/Shadow' function, 16 'Art Filter' adjustable effects applied at capture (Pop Art I/II, Soft Focus, Pale & Light Colour I/II, Light Tone, Grainy Film I/II, Pin Hole I/II/III, Diorama I/II, Cross Process I/II, Gentle Sepia, Dramatic Tone I/II, Key Line I/II, Watercolour I/II, Vintage I/II, Partial Colour I/II/II [18 colours], Bleach Bypass I/II, Instant Film), up to nine 'Art Effects' depending on the selected 'Art Filter' (Soft Focus, Pin Hole, White Edge, Frame, Star Light, Blur – Top And Bottom, Blur – Left And Right. Shade – Top And Bottom, Shade – Left And Right), 'Live Composite' function, 'Live Bulb/Live Time' modes, anti-shock shooting, intervalometer (up to 9999 frames), multi-shot HDR capture, auto bracketing modes (AE, WB, ISO, flash, focus and 'Art Filters'), focus stacking, 'Super Control Panel' screen, real-time histogram display, guide grids (choice of six and adjustable for colour), 'Night Vision' mode, dual-axis level indicator, highlight and shadow alerts (adjustable thresholds via histogram), adjustable image display time, auto image rotation, slide show (with a choice of music and transitions), playback zoom (up to 14x), 4/9/25/100/Calendar thumbnail displays (also available in slide show mode), 'Lightbox' side-by-side comparison display, in-camera editing functions (Shadow Adjust, Red-Eye Fix, Trim, Aspect, B&W, Sepia, Saturation, Resize and e-Portrait), in-camera RAW-to-JPEG conversion, in-camera RAW image overlay, copyright info, silent shooting, DPOF support, built-in WiFi 2.4 GHz and Bluetooth LE 4.2 wireless connectivity.

Power: 7.2 volt/1210 mAh rechargeable lithium-ion battery pack (BLS-50 type). In-camera battery charging possible via USB C.

Dimensions (WxHxD): body only = 125.3x85.2x52.0 mm.

Weight: body only = 370 grams (without battery pack and memory card).

Price: $1699 body only. Silver, black or 'Sand Biege' finishes. $2199 with M.Zuiko Digital ED 12-45mm f/4.0 PRO zoom lens (silver or black only). OM Digital Solutions provides a two-year warranty for OM System cameras and lenses purchased from an authorised Australian reseller.

Distributor: OM Digital Solutions Australia, telephone 1300 659 678, or visit https://explore.omsystem.com/au/en/

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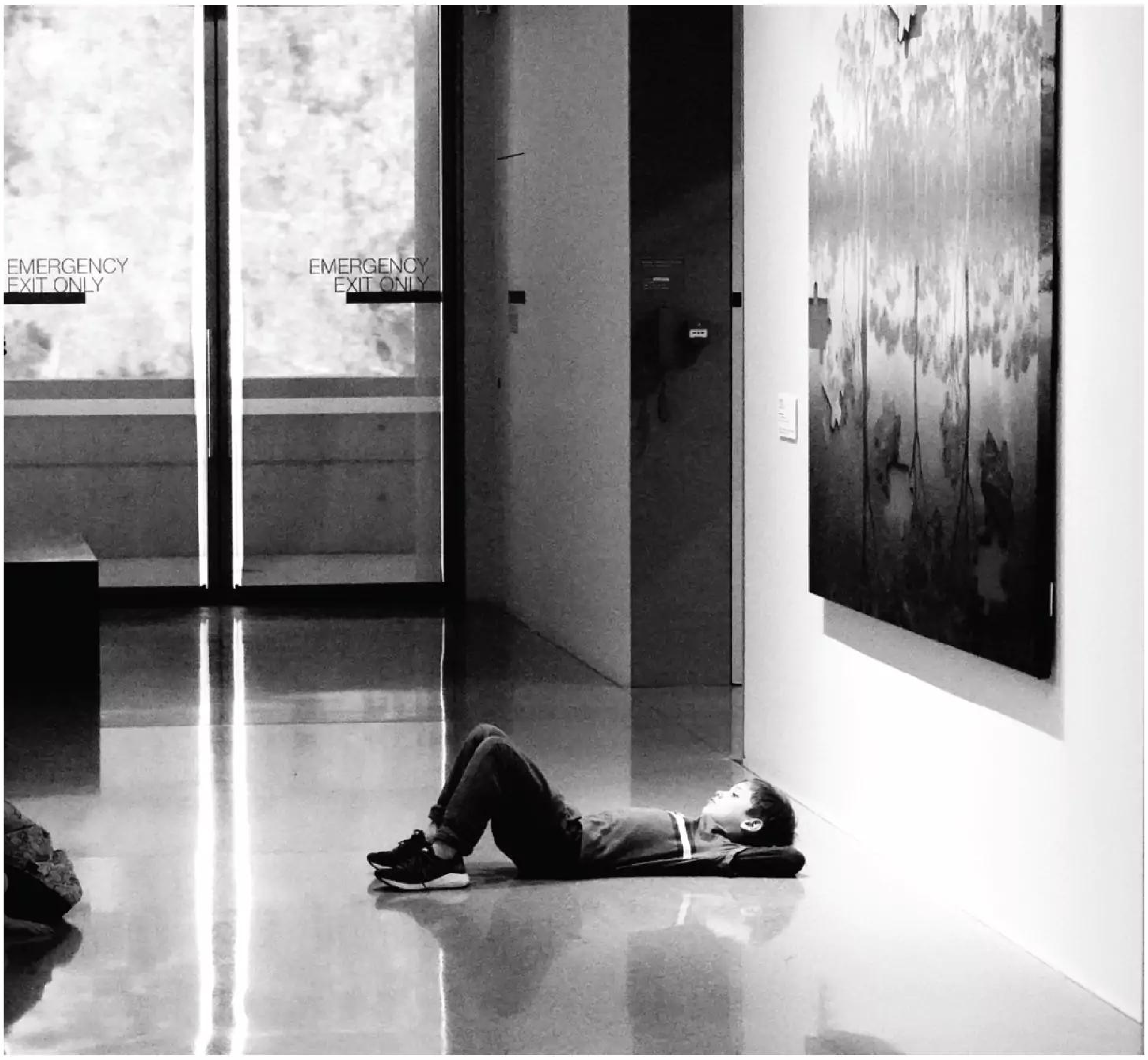


2025 SIGMA SHOWCASE THIRD ROUND WINNERS

HIGHLY COMMENDED

Who doesn't like a bit of photographic humour? This B&W study by **Philip Berry** is called *The Laid-Back Art Critic* and it was taken at the National Gallery of Australia in Canberra. Good photographers are always on the look-out for a picture. Philip used a Sony DSC-RX10 Mark IV.

2025 SIGMA SHOWCASE – OPEN FOR ENTRIES

Sigma lenses is the sponsor for our Showcase competition, made possible through the generosity of the Australian distributor C.R. Kennedy & Company Pty Ltd. The grand prize for the 2025 Sigma Showcase is a Sigma lens to the value of $1000 and the winner can pick the model and the mount that they want.

Additionally, the winner of each round receives a complimentary six-issue subscription to *Australian Camera* magazine. If you already subscribe, your prize subscription will commence upon the expiry of your paid one.

You can enter the Sigma Showcase as many times as you like during the year, submitting up to four photographs each time. The entries received after the 2025 competition's new closing date of 31 December 2025 will be automatically entered in the 2026 Sigma Showcase which kicks off on 1 January 2026.

Note that it is not a requirement that entries to the Sigma Showcase be taken with a Sigma camera or lens. Read the accompanying rules carefully and get snapping.

SIGMA SHOWCASE

Tell us how you did it! When you enter the Sigma Showcase, remember to explain any tips and techniques you used to achieve the result. Also, let us know the type of camera and lens. Enter by email (see next page).

1. Title ______________________ Camera ______________ Lens ________________

2. Title ______________________ Camera ______________ Lens ________________

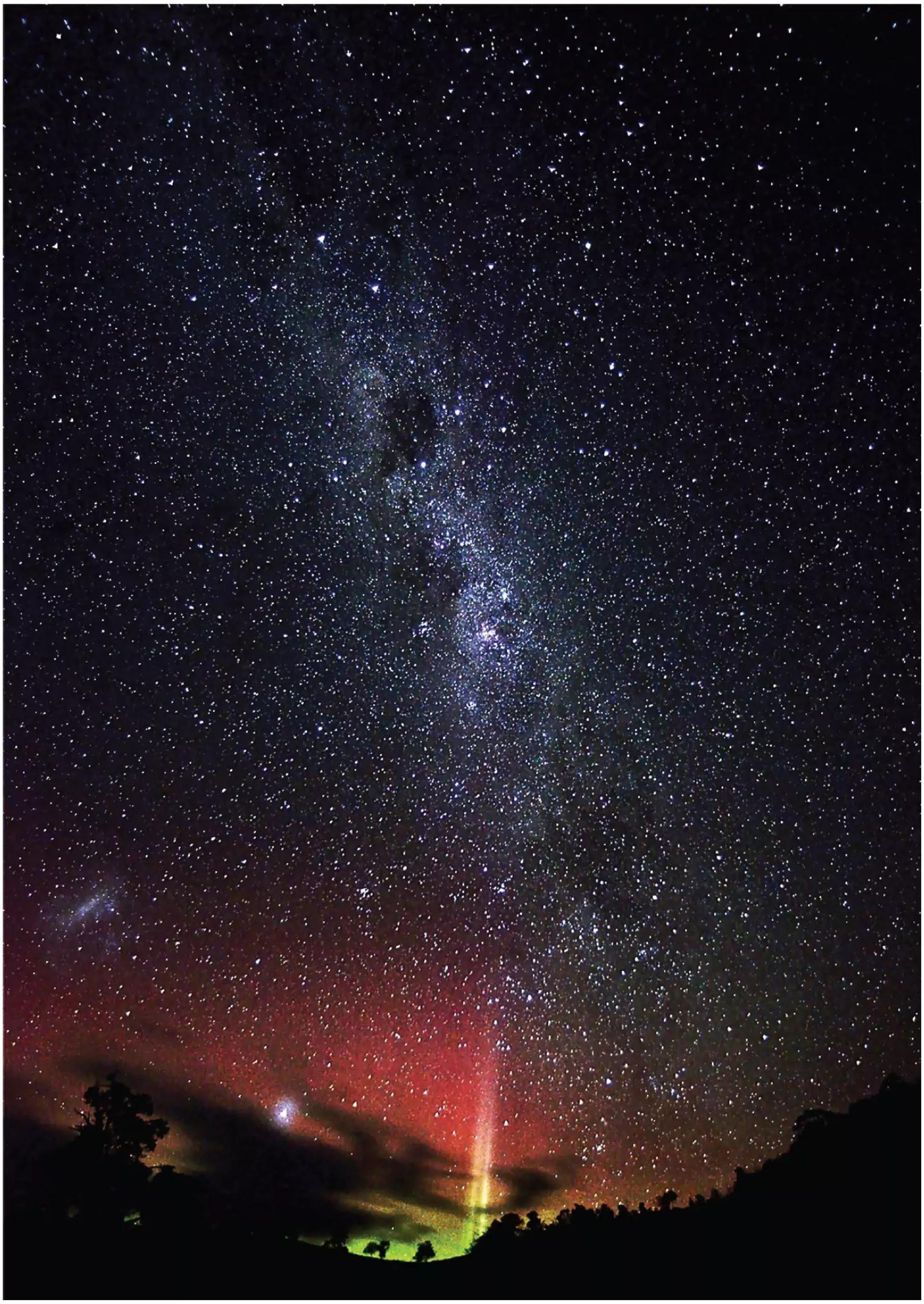
3. Title ______________________ Camera ______________ Lens ________________

4. Title ______________________ Camera ______________ Lens ________________

Name ________________________________ Telephone ________________

Address ______________________________ State ________ Postcode ________

Email to: camera@futurenet.com



WINNER

Regular Showcase contestant **John Walker** titled this image *WOW* and it brilliantly – and very sharply too – captures the Milky Way along with what he calls "strange coloured lights". Astrophotography is always a challenging combination of technicalities, creativity and lots of patience. John used a Nikon D800 with a Nikkor 35-105mm zoom lenson a tripod with an exposure time of 30 seconds at ISO 6400 and the colour balance manually set at 3800 degrees Kelvin.

ENTRY GUIDELINES

You can enter the Sigma Showcase by emailing your entries as attachments to camera@futurenet.com Please note that we are no longer accepting physical entries.

The requirements for submitting digital files are as follows.

- 300 dpi resolution, and at a file size which enables a reproduction of up to 20x15 cm. Please avoid submitting overly large file sizes, especially when emailing the images. Up to 2.0 MB in file size is more than sufficient.
- Digital retouching and manipulation is permitted, but the judges will continue to reward good in-camera techniques.
- Full details of the camera, lens and any retouching must be supplied with the image. Images can be titled if you wish, but this isn't essential.
- Up to four images may be permitted per entry.

What We Need To Know: We'd like to know a bit about your entries, so supplying the details below will help the judges better assess your images. Please feel free to add any other information that you feel is important.

- Title (optional)
- Camera
- Lens
- Exposure - shutter speed, aperture and ISO
- Location and/or situation
- Post camera processing (if any)
- Additional Comments
- Your mailing address

DIGITAL SLR CAMERAS BUYER’S CHECK LIST

CameraHouse

THIS CHECKLIST is designed to allow direct comparisons between different camera models, listed here in price order within each brand. The published prices are mostly supplied by the distributors as recommended retail prices (RRPs). However, some distributors no longer supply RRPs to the media, so it has become necessary to determine an ‘estimated street price’ derived from the range of prices for a model published by retailers. Where this has been necessary, the letter ‘E’ appears at the start of the entry.

A dot appearing in a column indicates that the feature is available on the camera model listed. Where a specification or product detail hasn’t yet been published or confirmed, the letters TBA (to be announced) or TBC (to be confirmed) are used. If a feature is irrelevant to a particular model – such as mirror lock-up for compact system cameras – then n/a (not applicable) is used. Every effort is made to ensure accuracy; please send any corrections to **camera@futurenet.com.**

				Sensor Size			Sensor Type			File Formats			Memory Cards							Exposure Modes						Features										
	Model	Price (Body Only Unless Noted With Asterisk *)	Megapixels (Effective)	Full-Frame	APS/DX	Four-Thirds	CCD	CMOS	Foveon	RAW	TIFF	JPEG	CF/XQD/Cfast	Memory Stick	SD/SDHC/SDXC	Continuous Shooting Speed (fps)	Buffer Length (U=Unlimited) Max. Resolution	Autofocus Points	Metering Pixels/Zones	Program	Subject Programs	Aperture Priority	Shutter Priority	Manual	Shutter Speeds	Built-In Flash	Anti-Dust	FHD Video	4K Video	Anti-Shake In Body	Wi-Fi	Live View	Weather Proofing	Monitor Size (cm)	Weight (Body Only)	Review Issue
E	Canon EOS 3000D*	$699	18		•			•		•		•			•	3	110	9	63	•	•	•	•	•	30-1/4000	•		•			•	•		6.8	436	Jul/Aug ‘18
E	Canon EOS 1500D*	$849	24.1		•			•		•		•			•	3	150	9	63	•	•	•	•	•	30-1/4000	•		•			•	•		7.62	475	Jul/Aug ‘18
E	Canon EOS 200D Mark II*	$1,249	24.1		•			•		•		•			•	5	U	9	63	•	•	•	•	•	30-1/4000	•	•	•	•		•	•		7.62	402	
E	Canon EOS 850D*	$1,379	24.1		•			•		•		•			•	7	170	45	220K	•	•	•	•	•	30-1/4000	•	•	•	•		•	•		8.1	515	
E	Canon EOS 90D	$2,099	32.5		•			•		•		•			•	10	58	45	220K	•	•	•	•	•	30-1/16,000	•	•	•	•		•	•	•	7.7	701	Nov/Dec ‘19
E	Canon EOS 6D Mark II	$2,189	26.2	•				•		•		•			•	6.5	110	45	7560	•	•	•	•	•	30-1/4000		•	•			•	•	•	7.62	685	Jan/Feb ‘18
E	Canon EOS 5D Mark IV	$3,699	30.4	•				•		•		•	•		•	7	U	61	150K	•		•	•	•	30-1/8000		•	•	•		•	•	•	8.1	890	Jan/Feb ‘17
E	Canon EOS-1DX Mark III	$11,999	20.1	•				•		•		•	•			16	1000+	191	400k	•		•	•	•	30/1/8000		•	•	•		•	•	•	8.1	1440	May/Jun ‘20
	Nikon D7500	$1,599	20.9		•			•		•		•			•	8	100	51	180K	•	•	•	•	•	30-1/8000	•	•	•	•		•	•	•	8.1	640	
	Nikon D780	$3,599	24.5	•				•		•		•			•	7	100	51	180k	•		•	•	•	900-1/8000		•	•	•		•	•	•	8.1	755	Jul/Aug ‘20
	Nikon D850	$4,549	45.7	•				•		•	•	•	•		•	7	200	153	180K	•		•	•	•	30-1/8000		•	•	•		•	•	•	8.1	915	Nov/Dec ‘17
	Nikon D6	$10,699	20.8	•				•		•		•	•			14	200	105	180K	•		•	•		900-1/8000		•	•	•		•	•	•	8.1	1270	Nov/Dec ‘20
	Pentax KF	$1,299	24.24		•			•		•		•			•	6	40	11	77	•	•	•	•	•	30-1/6000	•	•	•		•	•	•	•	7.62	625	
	Pentax K-3 Mark III	$2,995	25.73		•			•		•		•			•	12	37	101	370K	•		•	•	•	30-1/8000		•	•	•	•	•	•	•	8.1	735	Issue 423
	Pentax K-1 Mark II Limited	$4,099	36.4	•				•		•		•			•	4.4	70	33	86K	•		•	•	•	30-1/8000		•	•		•	•	•	•	8.1	925	
	DIGITAL RANGEFINDER CAMERAS																																			
	Leica M11	$15,090	60.3	•				•		•		•			•	4.5	100	MF/RF	TBC			•		•	60-1/16,000						•	•		7.5	455	Mar/Apr ‘22
	Leica M11-P	$15,490	60.3	•				•		•		•			•	4.5	100	MF/RF	TBC			•		•	60-1/16,000						•	•		7.5	455	Issue 425
	Leica M11-D	$15,990	60.3	•				•		•		•			•	4.5	100	MF/RF	TBC			•		•	60-1/16,000						•				457	
	Leica M11 Monochrom	$16,290	60.3	•				•		•		•			•	4.5	100	MF/RF	TBC			•		•	60-1/16,000						•	•		7.5	461	
	MIRRORLESS CAMERAS																																			
	Canon EOS R100*	$1,049	24.1		•			•		•		•			•	6.5	97	3975	384	•	•	•	•	•	30-1/4000	•		•	•		•	•		7.5	309	
	Canon EOS R50*	$1,399	24.2		•			•		•		•			•	15	28	4503	384	•	•	•	•	•	30-1/8000	•		•	•		•	•		7.5	328	Issue 423
	Canon EOS R50 V*	$1,449	24.2		•			•		•		•			•	15	28	4503	384	•	•	•	•	•	30-1/8000			•	•		•			7.5	323	
	Canon EOS R10*	$1,729	24.2		•			•		•		•			•	23	123	4503	384	•	•	•	•	•	30-1/4000	•	•	•	•		•	•		7.62	429	Issue 419
	Canon EOS RP	$1,819	26	•				•		•		•			•	5	U	4779	384	•	•	•	•	•	30-1/4000		•	•	•		•	•	•	7.62	440	May/June ‘19
	Canon EOS R7	$2,469	32.5		•			•		•		•			•	30	184	5915	384	•	•	•	•	•	30-1/8000		•	•	•	•	•	•	•	7.62	612	Jul/Aug ‘22
	Canon EOS R8	$2,599	24.2	•				•		•		•			•	40	1000+	4897	384	•	•	•	•	•	30-1/16,000		•	•	•		•	•	•	7.5	414	Issue 423
	Canon EOS R6 Mark II	$4,199	24.2	•				•		•		•			•	40	190	4897	384	•	•	•	•	•	30-1/16,000		•	•	•	•	•	•	•	7.62	588	Issue 421
	Canon EOS R5	$5,499	45	•				•		•		•	•		•	20	350	5940	384	•		•	•	•	30-1/8000		•	•	•	•	•	•	•	8.1	650	Sept/Oct ‘20
	Canon EOS R5 Mark II	$6,699	45	•				•		•		•	•		•	30	760	5850	6144	•		•	•		30-1/32,000		•	•	•	•	•	•	•	8.1	588	Issue 428
	Canon EOS R3	$8,199	24.1	•				•		•		•	•		•	30	540	4779	384	•		•	•	•	30-1/64,000		•	•	•	•	•	•	•	8.1	915	Jan/Feb ‘22
	Canon EOS R1	$10,990	24.2	•				•		•		•	•			40	500	4368	6144	•		•	•	•	30-1/64,000		•	•	•	•	•	•	•	8.1	920	
	Fujifilm X-T30 II	$1,449	26.1		•			•		•		•			•	20	32	425	256	•		•	•	•	900-1/32,000	•	•	•	•	•	•	•		7.62	329	Jan/Feb ‘22
	Fujifilm X-M5	$1,449	26.1		•			•		•		•			•	20	127	425	256	•		•	•	•	900-1/32,000		•	•	•		•			7.62	307	Issue 430
	Fujifilm X-S20	$2,349	26.1		•			•		•		•			•	20	256	425	256	•		•	•	•	900-1/32,000	•	•	•	•	•	•	•		7.62	410	Issue 424
	Fujifilm X-T50	$2,599	40.2		•			•		•		•			•	20	168	425	256	•		•	•	•	900-1/180,000	•	•	•	•	•	•	•		7.62	389	Issue 428
	Fujifilm X-E5	$2,699	40.2		•			•		•	•	•			•	20	168	425	256	•		•	•	•	900-1/180,000		•	•	•	•	•	•		7.62	396	Issue 433
	Fujifilm X-T5	$2,899	40.2		•			•		•	•	•			•	15	119	425	256	•		•	•	•	900-1/180,000		•	•	•	•	•	•	•	7.62	476	Issue 422
	Fujifilm X-H2	$3,399	40.2		•			•		•	•	•	•		•	13	1000+	425	256	•		•	•	•	900-1/180,000		•	•	•	•	•	•	•	7.62	579	Issue 420
	Fujifilm X-H2S	$3,999	26.1		•			•		•	•	•	•		•	40	1000+	425	256	•		•	•	•	900-1/32,000		•	•	•	•	•	•	•	7.62	579	Jul/Aug ‘22
	Leica SL3-S	$8,990	24.6	•				•		•		•	•		•	30	175	779	TBC	•		•	•	•	1800-1/16,000		•	•	•	•	•	•	•	8.1	768	Issue 433
	Leica SL3	$11,890	60.3	•				•		•		•	•		•	15	70	315	TBC	•		•	•	•	3600-1/16,000		•	•	•	•	•	•	•	8.1	769	Issue 429

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Nikon Z30*	$1,549	20.9		•		•		•		•			•	11	71	209	TBC	•		•	•	•	30-1/4000	•		•	•		•			7.5	350	
Nikon Z50*	$1,469	20.9		•		•		•		•			•	11	71	209	TBC	•	•	•	•	•	30-1/4000	•		•	•		•	•		8.1	395	
Nikon Zfc*	$1,799	20.9		•		•		•		•			•	11	71	209	TBC	•	•	•	•	•	30-1/4000	•		•	•		•	•		7.5	390	Nov/Dec '21
Nikon Z50II*	$2,279	20.9		•		•		•		•			•	30	200	231	TBC	•	•	•	•	•	900-1/4000	•		•	•		•	•		8.1	495	
Nikon Z5	$2,399	24.3	•			•		•		•			•	4.5	100	273	TBC	•		•	•	•	30-1/8000		•	•	•	•	•	•	•	8.1	590	Jan/Feb '21
Nikon Z5II	$2,699	24.5	•			•		•		•			•	30	120	299	TBC	•		•	•	•	900-1/8000		•	•	•	•	•	•	•	8.1	620	Issue 431
Nikon Z6II	$3,699	24.5	•			•		•	•	•	•		•	14	200	273	TBC	•		•	•	•	900-1/8000		•	•	•	•	•	•	•	8.1	615	May/June '21
Nikon Zf	$3,499	24.5	•			•		•	•	•			•	30	120	273	TBC	•		•	•	•	900-1/8000		•	•	•	•	•	•	•	8.1	630	Issue 425
Nikon Z6III	$4,199	24.5	•			•		•		•	•		•	60	1000+	299	TBC	•		•	•	•	900-1/16,000		•	•	•	•	•	•	•	8.1	660	Issue 429
Nikon Z7II	$5,549	45.7	•			•		•	•	•	•		•	10	200	493	TBC	•		•	•	•	900-1/8000		•	•	•	•	•	•	•	8.1	615	
Nikon Z8	$7,449	45.7	•			•		•	•	•	•		•	20	1000+	493	TBC	•		•	•	•	900-1/32,000		•	•	•	•	•	•	•	8.1	820	Issue 424
Nikon Z9	$9,899	45.7	•			•		•	•	•	•			30	1000+	493	TBC	•		•	•	•	900-1/32,000		•	•	•	•	•	•	•	8.1	1160	Jan/Feb '22
Olympus OM-D E-M10 IV	$949	20.3			•	•		•		•			•	15	49	121	324	•	•	•	•	•	60-1/16,000	•	•	•	•	•	•	•		7.62	335	Nov/Dec '20
OM System OM-5	$1,499	20.4			•	•		•		•			•	30	20	121	324	•		•	•	•	60-1/32,000		•	•	•	•	•	•	•	7.62	366	Issue 421
OM System OM-5 Mark II	$1,699	20.4			•	•		•		•			•	30	TBC	121	324	•		•	•	•	60-1/32,000		•	•	•	•	•	•	•	7.62	370	Issue 433
OM System OM-1	$2,699	20.4			•	•		•		•			•	120	92	1053	324	•		•	•	•	60-1/32,000		•	•	•	•	•	•	•	7.62	511	Mar/Apr '22
OM System OM-3	$3,199	20.4			•	•		•		•			•	120	90	1053	324	•		•	•	•	60/1/32,000		•	•	•	•	•	•	•	7.62	413	Issue 430
OM System OM-1 Mark II	$3,599	20.4			•	•		•		•			•	120	219	1053	324	•		•	•	•	60-1/32,000		•	•	•	•	•	•	•	7.62	511	Issue 427
Panasonic Lumix G100V*	$1,299	20.3			•	•		•		•			•	10	480	49	1728	•	•	•	•	•	60-1/16,000	•	•	•	•	•	•	•		7.62	303	
Panasonic Lumix G85*	$1,449	16			•	•		•		•			•	9	100	49	1728	•	•	•	•	•	60-1/16,000	•	•	•	•	•	•	•	•	7.62	453	Jan/Feb '17
Panasonic Lumix G95	$1,599	20.3			•	•		•		•			•	9	300	49	1728	•	•	•	•	•	60-1/16,000	•	•	•	•	•	•	•	•	7.62	484	Nov/Dec '19
Panasonic Lumix G9	$1,599	20.3			•	•		•		•			•	20	600	225	1728	•		•	•	•	60-1/32,000		•	•	•	•	•	•	•	7.62	579	Jan/Feb '18
Panasonic Lumix G90*	$1,699	20.3			•	•		•		•			•	9	300	49	1728	•	•	•	•	•	60-1/16,000	•	•	•	•	•	•	•	•	7.62	481	
Panasonic Lumix GH5 II	$2,099	20.3			•	•		•		•			•	12	999	225	1728	•		•	•	•	60-1/16,000		•	•	•	•	•	•	•	7.5	647	Sept/Oct '21
Panasonic Lumix S9	$2,699	24.2	•			•		•		•			•	30	36	779	1728	•		•	•	•	60-1/8000		•	•	•	•	•			7.62	403	
Panasonic Lumix S5	$2,799	24.2	•			•		•		•			•	7	999	225	1728	•		•	•	•	60-1/8000		•	•	•	•	•	•	•	7.5	630	Jan/Feb '21
Panasonic Lumix S5II	$3,199	24.2	•			•		•		•			•	30	300+	779	1728	•		•	•	•	60-1/8000		•	•	•	•	•	•	•	7.62	657	Issue 422
Panasonic Lumix G9 II	$3,299	25.2			•	•		•		•			•	75	225	779	1728	•		•	•	•	60-1/32,000		•	•	•	•	•	•	•	7.62	575	Issue 427
Panasonic Lumix S5IIX	$3,499	24.2	•			•		•		•			•	30	300+	779	1728	•		•	•	•	60-1/8000		•	•	•	•	•	•	•	7.62	657	
Panasonic Lumix S1	$3,599	24.2	•			•		•		•	•		•	9	999	225	1728	•		•	•	•	60-1/8000		•	•	•	•	•	•	•	8.1	899	
Panasonic Lumix GH6	$3,699	25.5			•	•		•		•	•		•	75	200	315	1728	•		•	•	•	60-1/32,000		•	•	•	•	•	•	•	7.5	739	Issue 419
Panasonic Lumix GH7	$3,899	25.2			•	•		•		•	•		•	75	260	315	1728	•		•	•	•	60-1/32,000		•	•	•	•	•	•	•	7.5	721	
Panasonic Lumix S1 IIE	$4,199	24.1	•			•		•		•	•		•	30	300	779	1728	•		•	•	•	60-1/8000		•	•	•	•	•	•	•	7.62	712	
Panasonic Lumix S1 II	$5,299	24.1	•			•		•		•	•		•	70	300	779	1728	•		•	•	•	60-1/16,000		•	•	•	•	•	•	•	7.62	718	
Panasonic Lumix S1R	$5,299	47.3	•			•		•		•	•		•	9	50	225	1728	•		•	•	•	60-1/8000		•	•	•	•	•	•	•	8.1	898	Sept/Oct '19
Panasonic Lumix S1R II	$5,499	44.3	•			•		•		•	•		•	40	80	779	1728	•		•	•	•	60-1/16,000		•	•	•	•	•	•	•	8.1	712	Issue 432
Panasonic Lumix S1H	$5,999	24.2	•			•		•		•			•	9	999	225	1728	•		•	•	•	60-1/8000		•	•	•	•	•	•	•	8.1	1052	Mar/Apr '20
Sigma BF	$3,995	24.2	•			•		•		•				8	1000	49	TBC	•		•	•	•	30-/25,600		•	•	•				•	8.1	388	Issue 431
Sigma fp L	$3,899	61.2	•			•		•		•			•	10	14	49	TBC	•		•	•	•	30-1/8000		•	•	•	•	•	•	•	8.1	375	
Sony Alpha ZV-E10	$1,099	24.2		•		•		•		•		•	•	11	99	425	1200	•	•	•	•	•	30-1/4000		•	•	•		•			7.5	343	
Sony Alpha 6400	$1,299	24.2		•		•		•		•		•	•	11	115	425	1200	•	•	•	•	•	30-1/4000	•	•	•	•	•	•	•	•	7.5	403	Sept/Oct '19
Sony Alpha ZV-E10 II	$1,699	26		•		•		•		•			•	11	1000+	759	1200	•	•	•	•	•	30-1/8000		•	•	•	•	•			7.5	292	
Sony Alpha 6700	$2,299	26		•		•		•		•			•	11	143	759	1200	•		•	•	•	30-1/8000		•	•	•	•	•	•	•	7.5	409	
Sony Alpha 7 III	$2,379	24.2	•			•		•		•		•	•	10	163	693	1200	•	•	•	•	•	30-1/8000		•	•	•	•	•	•	•	7.5	650	Sept/Oct '18
Sony Alpha 7C	$3,299	24.2	•			•		•		•			•	10	223	693	1200	•		•	•	•	30-1/4000		•	•	•	•	•	•	•	7.5	509	
Sony Alpha ZV-E1	$3,249	12.1	•			•		•		•			•	10	1000+	759	1200	•	•	•	•	•	30-1/8000		•	•	•	•	•		•	7.5	400	
Sony Alpha 7C II	$3,299	33	•			•		•		•			•	10	88	759	1200	•		•	•	•	30-1/8000		•	•	•	•	•	•	•	7.5	429	
Sony Alpha 7 IV	$3,499	33	•			•		•		•	•		•	10	1000+	759	1200	•		•	•	•	30-1/8000		•	•	•	•	•	•	•	7.5	658	
Sony Alpha 7CR	$4,799	61	•			•		•		•			•	8	48	693	1200	•		•	•	•	30-1/8000		•	•	•	•	•	•	•	7.5	430	
Sony Alpha 7R III	$4,499	42.4	•			•		•		•		•	•	10	76	425	1200	•		•	•	•	30-1/8000		•	•	•	•	•	•	•	7.5	657	May/June '18
Sony Alpha 7S III	$4,699	12.1	•			•		•		•	•		•	10	1000+	759	1200	•		•	•	•	30-1/8000		•	•	•	•	•	•	•	7.5	699	Mar/Apr '21
Sony Alpha 7R IV(A)	$4,999	61	•			•		•		•		•	•	10	68	567	1200	•		•	•	•	30-1/8000		•	•	•	•	•	•	•	7.5	665	Jan/Feb '20
Sony Alpha 7R V	$5,499	61	•			•		•		•	•		•	10	1000+	693	1200	•		•	•	•	30-1/8000		•	•	•	•	•	•	•	8	638	
Sony Alpha 9 II	$5,689	24.2	•			•		•		•		•	•	20	361	693	1200	•		•	•	•	30-1/32,000		•	•	•	•	•	•	•	7.5	678	May/June '20
Sony Alpha 1	$8,499	50.1	•			•		•		•	•		•	30	165	759	1200	•		•	•	•	30-1/8000		•	•	•	•	•	•	•	7.5	725	
Sony Alpha 9 III	$9,999	24.6	•			•		•		•	•		•	120	192	759	1200	•		•	•	•	30-1/80,000		•	•	•	•	•	•	•	8	617	
Sony Alpha 1 II	$10,999	50.1	•			•		•		•	•		•	30	400	759	1200	•		•	•	•	30-1/32,000		•	•	•	•	•	•	•	8	658	

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